

DCNO

3570

ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT

WATANA FEASIBILITY ESTIMATE
PHASE III

Contract NO. 5225

Work Order NO. 5

Diversified Engineers & Constructors, Inc.
P. O. Box 487
Cottonwood, Arizona 86326

2.4.7

ESTIMATING
JMMAL

BIDS OPENED _____ AT _____
 COMPLETION TIME _____ Date _____ Location _____
 BID BOND _____

DIVERSIFIED CONSTRUCTORS, INC.

JOB _____ WATANA

FOR _____

EST. BY _____ ART LEE

COST & ESTIMATE SUMMARY

TRICA & MURRAY, SEATTLE 47263

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
330	LAND & LAND RIGHTS										
	Land & Land Rights	1	LS								
	SUB.TOTAL - ACCOUNT 330 LAND & LAND RIGHTS									L.S. 9016000	L.S. 9016000
331.1	UNDERGROUND POWERHOUSE										
331.11	Powerhouse & Tailrace										
111	Excavation - Rock	46515	CY	1542437.1156	53771.3	11.46	533062.1024	47631.4	1215	565157.2645	1239425
113	Drill & Grout U/S of Powerhouse	14910	LF	4.95	73805.037	551.7	206	3071.5	0.8	10139.132	19281.131
114	Concrete	12470	CY	10555	1316209.1080	134476	16.04	200019.1384	17283.4	1854	228700.7336
116	Drain Holes	14810	LF	3.03	44874.023	3406	122	18068.044	6516	0.88	13033
117	Metalwork	1	LS								
118	Architectural	1	LS								
119	Mechanical	1	LS								
123	Drainage Gallery 10' x 10' Exc	190	LF	2429	46415.9032	1716.1	1224	13726.3232	2141	6212	11803.5370
128	Tunnel Slab Concrete	116	CY	17902	20766.1950	2262	2720	3155.7214	2568	3424	3983.554
129	Penstock Access Plug Concrete	6025	CY	5546	33414.7	2.71	16328	1583	95376	1229	74047
331.15	BUS TUNNELS										
151	Excavation, Horizontal 22 x 22	52	LF	105870	551052.2052	1510.7	352.08	18308.2883	15508	37725	19617
152	Excavation, Inclined 16 x 16	98	LF	37935	35659.17146	1611.7	129.84	12205.10914	10259	13712	12936
154	Bus Tunnel Slab Concrete	117	CY	16339	19117.1835	2147	2349	2748	2035	2381	2748
331.16	TRANSFORMER GALLERY										
161	Excavation	4785	CY	2937	140535.1211	57946	964	46127	10.89	52587	1068
166	Concrete Slab	675	CY	25631	173144.2804	18927	2695	18191	2534	17105	3223

DIVERSIFIED CONSTRUCTORS, INC.

JOB WATANA - STAGE 3

NO. _____

FOR _____ DATE _____

EST BY ART LEE SHEET 1 OF 1

COST & ESTIMATE SUMMARY

Location
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BID BOND		COST & ESTIMATE SUMMARY										EST. BY		TOTAL DIRECT COST		TOTAL COST		BID		Unit Cost		Amount	
QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount						

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DIVERSIFIED CONSTRUCTORS, INC.

BIDS OPENED _____ AT _____
 COMPLETION TIME _____ Date _____ Location _____
 BID BOND _____

JOB _____ WATANA -
 FOR _____
 EST. BY _____ ART LEE

COST & ESTIMATE SUMMARY

PRICE & MURRAY, SEATTLE 47283													TOTAL					
ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS	SUB-CONTRACTS	DIRECT COST		
167	Drain Holes	2779	LF	303	8393	023	637	122	3379	044	1218	088	2438			580	10065	
178	Enclosures (Architectural)	1	LS												L.S.	63800	L.S.	63810
331.18	CARE OF WATER	1	LS						248298		26310		202587			L.S.	477195	
331.19	INSTRUMENTATION	1	LS												L.S.	154000	L.S.	154000
331.20	MISCELLANEOUS BUILDINGS & STRUCTURES	1	LS												L.S.	441045	L.S.	441045
	SUBTOTAL - ACCOUNT 331 POWERHOUSE				3810553		827944		1743577		813727		1763128		2745825	2113867		12878601
332.1	RESERVOIRS, DAMS AND WATERWAYS. Reservoir Clearing	16500	Ac	7090	11713350	1611	265815	9389	1549185	1047	1001055	9754	1609410				978116138215	
	SUBTOTAL - ACCOUNT 332.1 RESERVOIR CLEARING				11713350		265815		1549185		1001055		1609410				1613871	
332.2	DIVERSION TUNNELS																	
215	Lower Diversion Tunnel Plug Concrete at Tailrace Tunnel	565	CY	9921	56370	1193	6740	1459	8243	1289	7283	1674	94584559	25758156	8212009		117123	
	SUBTOTAL - ACCOUNT 332.2 DIVERSION TUNNEL				56370		6740		8243		7283		9458	25758	821		117123	
332.22	U/S COFFERDAM																	
332.23	D/S COFFERDAM																	
231	Common Excavation	2500	CY	119	2975	002	50	068	1700	071	1775	083	2075			343	857	
232	Impervious Fill	10200	CY	407	41514	013	1326	103	10506	077	7854	123	12546			723	7374	
233	Rock & Gravel Fill	15620	CY	088	13746	001	156	055	8591	052	8122	063	9841			259	3045	
235	Cutoff Wall D/S	33700	SF												2200	741400	7200	741400
236	Removal of Cofferdam	10000	CY	089	8900	002	200	055	5500	050	5000	001	6100			251	25700	
237	Care of Water	1	LS		392811		8250		157269		22687		165601			L.S.	7461	

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COST & ESTIMATE SUMMARY

JOB WATANA - STAGE 3 NO. _____
 FOR _____ DATE _____
 EST. BY ART LEE SHEET 2 OF _____

Location
BID BOND

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BIDS OPENED _____ AT _____
 COMPLETION TIME _____ Date _____ Location _____
 BID BOND _____

DIVERSIFIED CONSTRUCTORS, INC.

JOB _____ WATANA _____

FOR _____

EST. BY _____ ART LEE _____

COST & ESTIMATE SUMMARY

TRICK & MURRAY, SEATTLE 47283

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
	SUBTOTAL - ACCOUNT 332.23 D/S										
	COFFERDAM			455946	9782	183506	415428	196162		741400	163619
332.3	MAIN DAM										
311	Common Excavation	674000	CY	400 2696000 024	161740 075	505500 083	572900 125	842500			709 407666
312	Rock Excavation	116800	CY	438 511684 203	237104 227	323536 192	224256 251	293168			1361 1589148
313	Impervious Fill	1552300	CY	155 2406065 001	15523 090	1397070 107	1640561 114	1769622			467 724924
314	Provide Drying Facilities for Impervious Fill	1	LS								0
315	Drying Impervious Fill	400000	CY	085 340000 001	4000 044	176000 044	176000 054	216000 006	24000		234 93600
317	D/S FILLS										
3171	D/S Rock from Quarry	17337600	CY	301 52186176 147	25486272 148	25659148 181	31381056 240	41610240			1012 17222339
3172	D/S Gravel	408700	CY	204 833748 001	4087 187	559919 186	760182 220	899140			748 305707
318	FILTERS										
3181	U/S Filters	609000	CY	164 998760 001	6090 106	245540 145	883050 173	1053570			589 35821
3182	D/S Filters	822700	CY	164 1349228 001	8227 106	872062 145	1192915 173	1423271			589 484570
319	U/S Fills										
3191	U/S Rock from Stockpile	326100	CY	365 1190265 147	479367 223	721203 251	818511 320	1043520			1306 425836
3192	U/S Rock from Quarry	5189400	CY	301 15620094 147	7028418 148	7680312 181	9392814 240	12454560			1017 5277619
322	Raking Rockfill	887500	CY	013 115375 001	8875 108	71000 004	35500 006	53250			032 28400
323	Drill & Grout - Consolidation	113430	LF							2860 3241098	2860 3241098
324	Drill & Grout - Curtain	82800	LF							2200 1821600 2200	1821600
325	Dam Dental Concrete	24460	CY	1073 3931456 2271	555487 1500	366900 169	398453 1832	448107426	1045910		77581 674631
326	Drain Holes	30900	LF	303 93627 003	7107 122	37498 044	13596 088	27192			580 17922

DIVERSIFIED CONSTRUCTORS, INC.

JOB WATANA - STAGE 3 NO.

FOR DATE

EST. BY ART LEE SHEET 3 OF

COST & ESTIMATE SUMMARY

	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST	TOTAL COST		BID				
											Unit Cost	Amount	Unit Cost	Amount			
D/S DAM			4599.46	778.2	18356.6	4542.8	19616.3		7414.00	163649.5			2182430.-				
	674000	CY	4.00	2696000	0.24	161760	0.15	505500	0.85	572900	1.25	842500	7.89	4778660	9.46	6376040.-	
	116800	CY	4.38	511584	2.03	237104	2.27	323536	1.92	224256	2.51	293168	13.61	1589648	18.16	2121088.-	
	1552300	CY	1.55	2406065	0.01	15523	0.90	1397070	1.07	1440961	1.14	1769022	4.67	7249241	6.23	9670879.-	
ervious Fill	1	LS								- 0 -							
	400000	CY	0.85	340000	0.01	4000	0.44	176000	0.44	176000	0.54	216000	0.26	24000	3.12	1248000.-	
	17337600	CY	3.01	52186176	1.47	25486272	1.48	25659148	1.81	31381056	2.40	41610240	10.17	176373392	13.56	25097856.-	
	408700	CY	2.04	833748	0.01	4087	1.37	559919	1.86	760182	2.20	899140	7.48	3057076	9.98	4078626.-	
	609000	CY	1.64	998760	0.01	6090	1.06	645540	1.45	883050	1.73	1053570	5.89	3587010	7.85	4780650.-	
	822700	CY	1.64	1349228	0.01	8227	1.06	872062	1.45	1192915	1.73	1423271	5.89	4845703	7.85	6458195.-	
	326100	CY	3.65	1190265	1.47	479367	2.23	727203	2.51	618511	3.20	1043520	13.06	4258866	17.42	5680622.-	
	5189400	CY	3.01	15620094	1.47	7628418	1.48	7680312	1.81	9392314	2.40	12454560	10.17	52776198	13.56	70362044.-	
	887500	CY	0.13	115375	0.01	8875	1.68	71000	0.44	35500	0.46	53250	0.32	284000	0.43	381625.-	
	113930	LF								2860	3244098	2860	3244098			2860	4327355.-
	82800	LF								2200	1821600	2200	1821600			2200	2430180.-
	24460	CY	1.013	3931456	0.221	555487	1.500	366900	1.69	398453	1.832	4481074276	1045910	77581	328	9001200.-	
	30900	LF	3.03	93627	0.23	7107	1.22	37698	0.44	13596	0.88	27192	5.80	179220	7.72	238857.-	

BIDS OPENED _____ AT _____
 COMPLETION TIME _____ Date _____ Location _____
 BID BOND _____

DIVERSIFIED CONSTRUCTORS, INC.

JOB _____ WATANA - STA

FOR _____

EST. BY _____ ART LEE

COST & ESTIMATE SUMMARY

FRICK & MURRAY, SEATTLE 47262

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
.33	Grout Galleries & Portals										
.340	Dam Instrumentation	1	LS							L.S.	38500
	SUBTOTAL - ACCOUNT 332.3 MAIN DAM			82272378	34602317	39022388	47512194	22134140	10659110	5104198	271715525
332.4	RELICT CHANNEL										
.4	Relict Channel	1	LS	3721827	132738	2352536	3158246	3752570			L.S. 13117917
	SUBTOTAL - ACCOUNT 332.4 RELICT CHANNEL			3721827	132738	2352536	3158246	3752570			13117917
332.51	OUTLET FACILITIES										
332.52	MAIN SPILLWAY, INCLUDING CIVIL WORKS FOR OUTLET FACILITIES										
.5215	Surface Preparation - Control Structure	37000	SF	221 83990013	4810021	7770016	5920034	12580			311 115070
.5218	Backfill	60700	CY	204 123828001	107137	83159186	112902220	133540			748 454036
.5220	Spillway Concrete										
.5221	Piers	21370	CY	202 1927360788	170533 1759	375898 1519	331021 1901	406244732	1575610 1600	341920 778	5128586
.5222	Deck	350	CY	496 1738458840	30940 3451	12079 4565	15978 4624	16359 8617	30160 2400	8400 8227	287761
.5223	Guide Walls	37900	CY	174 65987691571	595409 2611	989569 2361	894819 2955	1119945 6560	3244240 1600	604400 3700	14049151
.5224	Slab										
.5225	Ogee	242350	CY	5212 12631282351	850649 1393	3375936 1221	2959094 1550	3756425 7157	17344990 1600	3877600 1048	44795976
.5260	Spillway Mechanical & Electrical	1	LS							L.S.	483480
	SUBTOTAL - ACCOUNT 332.52 MAIN SPILLWAY			21539074	1652748	4944411	1317734	5445093	22195000	5317800	1531406
332.6	POWER AND OUTLET INTAKE & APPROACH										
.611	Common Excavation										
.612	Rock Excavation - Approach	1750	CY	439 7683204	3570 275	4813 192	3360 251	4393			1361 23819
.6121	Rock Surface Preparation	55200	SF	227 125304013	7176 021	11592016	8832034	18768			311 171472

COST & ESTIMATE SUMMARY

WATANA - STAGE 3 NO. _____
JOB _____ DATE _____
FOR _____ SHEET 7 OF _____
EST. BY ART. LEE

Location _____
BID BOND _____

BID BOND		COST & ESTIMATE SUMMARY										TOTAL DIRECT COST		TOTAL COST		BID			
	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount		
										L.S.	38500	L.S.	38500		L.S.	93482			
	1	LS																	
332.3 MAIN DAM			82272378	34602317	3902238B	47512154	22134140	1069910	5104198		271715525						32235189		
	1	LS	3721827	132738	2352536	3158246	3752570					L.S.	13117917		L.S.	17444054			
332.4 RELICT CHANNEL																			
			3721827	132738	2352536	3158246	3752570												
UDING CIVIL FACILITIES																			
Control Structure	37000	SF	221	83990013	4810021	7770016	5920034	12580				311	115070		415	153550			
	60700	CY	204	123828021	107137	83159186	112902220	133540				748	454036		997	605179			
	21370	CY	909	192736076	170533	1759	37589B	1549	331021	1901	40624417373	1575L10V1600	3419207709		5128586		320	688700	
	350	CY	49670	1738458840	30940	3451	12079	4565	1597B	4674	163598617	301602400	840082217		287761		1096	383600	
	37900	CY	17411	65987691571	595409	2611	989569	2361	894819	2955	1119945	8560	32442401600	606400	37049	14049151		494	18734728
	242350	CY	SZ12	12631282351	850649	1349	3375436	1221	2959094	1550	375642571571	173449901600	3871100	18484	44775976		21648	5973428	
Electrical	1	LS																	
T 332.52 MAIN SPILLWAY			21539074	1652748	4144611	4317731	5445073	22195000	53217800		65314060						87102830		
INTAKE & APPROACH																			
Approach	1750	CY	439	7683204	3570	275	4813	192	3360	251	4393		1361	23819		1815	31763		
tion	55200	SF	229	125304012	7176	021	11592016	88320	54	18768		311	171672		415	229080			

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BIDS OPENED _____ AT _____
 COMPLETION TIME _____ Date _____ Location _____
 BID BOND _____

DIVERSIFIED CONSTRUCTORS, INC.

JOB _____ WATA _____

FOR _____

EST. BY _____ ART _____

COST & ESTIMATE SUMMARY

FRICK & MURRAY, BEATLE 47263

				CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
ITEM NO.	DESCRIPTION	QUANTITY	UNIT																
.6122	Concrete Removal	5650	CY	4923	278150	250	14125	1527	80276	821	46169	1369	77349					8865	50
.613	Intake Rock Excavation	3800	CY	439	16682	204	7752	225	10450	122	7296	251	9538					1351	5
.614	Concrete	136560	CY	19559	12958180	938	1271553	1619	2194716	1562	2117447	1863	2525483	7225	9809122	1600	2168760	837	3304
.615	1" x 15' Rockbolts																		
.616	Intake Mechanical & Electrical	1	LS																
.617	Intake Building																		
.618	Strand VSL Anchors Including Installation	24080	LF																
.619	Drilling 11" Dia. Holes & Grouting	18400	LF																
.62	GATE EQUIPMENT																		
.621	Intake Gates, U 1 & 2	4	Ea																
.622	Intake Gates, U 3	2	Ea																
.623	Intake Bulkhead	1	LS																
.624	Shutter Gates	1	LS																
.625	Trashracks	1	LS																
.626	Ice Boom	6	Ea																
	SUBTOTAL - ACCOUNT 332.6 POWER & OUTLET INTAKE AND APPROACH				1333597.1		130417.6		23078.47		718360.4		263552.1		930713.2		571527.7		27.4
332.7	SURGE CHAMBER																		
.711	Rock Excavation	63100	CY	3129	1980709	1254	791274	1081	282111	982	219612	1149	725019	2559	1621039			1817	65
.716	Surge Chamber Concrete	3100	CY	16582	514042	1799	55769	2181	67611	1850	57350	2465	76415	8013	248403	1600	49600	3400	10
.717	Drain Holes	10050	LF	303	30452	023	2312	122	12261	044	4422	088	8844					580	
.718	1" x 10' Rockbolts	260	Ea	2416	0282	121	497	1093	2842	373	970	740	1924	3212	8351			8025	
.719	Stoplogs, Guides & Followers, Stoplogs 40' wide x 44' high	1	LS																

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DIVERSIFIED CONSTRUCTORS, INC.

JOB WATANA - STAGE 3 NO. _____
 FOR _____ DATE _____
 EST. BY ART LEE SHEET 5 OF _____

COST & ESTIMATE SUMMARY

	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST		TOTAL COST		BID	
			Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
	5650	CY	4.23	23815.0	2.50	14125	15.27	86276	8.26	46669	13.69	77349					88.45	502569			118.60	670090
	3800	CY	4.39	16682	2.04	7752	2.25	10450	1.92	7296	2.51	9538					13.61	51718			18.15	68970
	136560	CY	9.59	12958180	9.38	1271553	16.19	2194716	15.63	2117447	18.63	2525483	72.25	9809122	16.00	2168960	74.77	10129461			92.5	12582000
trical	1	LS													L.S.	71500	L.S.	71500			L.S.	719331
cluding Installation	24080	LF													16.50	397320	16.50	397320			22.00	529760
Grouting	18400	LF													49.50	910800	49.50	910800			46.00	848400
	4	Ea													14620	585560	14620	585560			15211	780844
	2	Ea													14620	292780	14620	292780			15211	370422
	1	LS													L.S.	418277	L.S.	418277			L.S.	557772
	1	LS													L.S.	388500	L.S.	388500			L.S.	518065
	1	LS													L.S.	361680	L.S.	361680			L.S.	482300
	6	Ea													3000	180000	3000	180000			4000.5	240030
332.6 POWER 6 AND APPROACH																						
	63100	CY	31.29	1980709	12.54	791274	10.61	672111	9.82	619642	11.49	725019	25.69	1621039			101.74	6419794			135.69	8556360
	3100	CY	16.58	514042	17.99	55769	21.81	67611	18.50	57350	24.65	76415	80.13	248403	16.00	49600	314.90	1269190			460	1726000
	10050	LF	3.03	30452	0.23	2312	1.82	18261	0.44	4422	0.88	8844					5.80	58291			7.70	77385
	260	Ea	24.6	6222	1.21	497	10.93	2842	3.73	970	7.40	1924	32.12	8351			80.25	20866			107	27820
owers, Stoplogs	1	LS													L.S.	173718	L.S.	173718			L.S.	236088

TAICK & MURRAY, SEATTLE 47253

COST & ESTIMATE SUMMARY

EST. BY ART LEE

UNIVERSITY CONSTRUCTORS, INC.												JOB _____		FOR _____		WATANA	
COST & ESTIMATE SUMMARY												EST. BY _____		ART LEE			
ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST						
SUBTOTAL - ACCOUNT 322.70 SURGE CHAMBER																	
332.8	PENSTOCKS			2531415	847852	764825	682224	812202	1877775	223218	774195						
.811	Excavation, Shaft - 27' Dia	600	LF	147207200 ⁰⁶	195636184 ⁹¹	110982132 ⁸⁶	79716211 ⁶⁹	131808565 ³¹	339186								
.812	Excavation, Horizontal - 27' Dia	515	LF	55396285289281 ¹⁴	148907193 ⁸⁷	99243161 ⁸⁰	83327203 ³⁷	104736565 ³⁰	291130								
.813	Excavation, Horizontal - 21' Dia	265	LF	3714298426200 ⁰⁹	53011121 ⁸⁹	34447108 ⁷⁸	23747156 ³⁰	26135344 ⁹⁷	90622								
.814	Excavation, Horizontal - 18' Dia	430	LF	32147138232167 ⁰³	71319112 ⁵¹	48379938 ⁸⁹	40373118 ²²	50749251 ⁵¹	108192								
.815	Drill & Grout Consolidation	1	LS														
.816	Penstock Concrete Liner - Shaft - 24'	600	LF	307737846381108 ⁰¹	70026133 ²⁰	80100124 ³⁰	74616161 ²⁸	96804344 ⁴⁰	206436475 ²¹	28512735 ⁷⁷	134119						
.817	Concrete Liner - Horizontal 24' I.D.	515	LF	31549182602122 ²¹	13227132 ⁷³	18201124 ³⁸	640561605 ⁸¹	82699370 ⁰¹	174590475 ⁵¹	24468712 ¹²	115985						
.818	Concrete Liner - Horizontal 18' I.D.	265	LF	1052626904494 ⁹²	25154102 ⁴⁸	2715795 ⁹⁹	25437174 ³³	32947264 ¹⁷	7000536 ³³	9627173 ¹⁸	45937						
.819	Concrete Liner - Horizontal 15' I.D.	430	LF	34829365061678 ⁸⁸	3371822 ³⁰	3710980 ⁶¹	34462164 ⁶⁹	45017223 ⁴⁶	9608830 ⁰⁴	13218153 ⁵¹	625276						
.820	Steel Liner (Exclude Concrete)	635	Tn														
SUBTOTAL - ACCOUNT 332.8 PENSTOCKS																	
332.9	TAILRACE			32701179	661758	566718	130734	580875	1276249	1645568	24112						
.911	Tunnel Excavation - 37'	580	LF	267156324 ⁰⁵	223909233 ⁴²	135500144 ⁹⁷	113083245 ⁵⁷	142141870 ⁵⁰	504925								
.914	Tailrace Tunnel Concrete - 34' I.D.	580	LF	181181056284415 ⁹¹	93722184 ⁷¹	107132172 ⁴⁵	100221270 ⁸⁰	129334973 ²²	27446865 ⁴³	37949311 ⁵⁷	179871						
.917	Tailrace Stoplogs, Guides & Followers	1	LS														
SUBTOTAL - ACCOUNT 332.9 TAILRACE																	
333	WATERWHEELS, TURBINE & GENERATORS			14134440	217631	247632	213104	771075	777373	214577	358227						
.10	Guard Valves	2	Ea														
.11	Turbines & Governors	2	Ea														
SUBTOTAL - ACCOUNT 333 WATERWHEELS, TURBINE & GENERATORS																	
GRAND TOTAL																	

DIVERSIFIED CONSTRUCTORS, INC.

COST & ESTIMATE SUMMARY

JOB WATANA - STAGE 3 NO.
 FOR DATE
 EST. BY ART LEE SHEET 6 OF

BID & ESTIMATE SUMMARY																			
	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST	TOTAL COST		BID						
											Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount			
2.70 SURGE CHAMBER.			2531.44 ¹⁵	8478.52	7648.25	28238.4	81220.2	18777.79 ²	2733.18	77741.85 ⁹			10324.54 ³	-					
	600	LF	1070 ⁵¹	64720.7 ²⁰	1915636	184 ⁹⁷	110982	132 ⁸⁶	79.716	219 ⁴⁵	131808	565 ³¹	3391.86	2007 ⁵⁵	1504.53 ⁰	3344	2004400 -		
Dia	515	LF	553 ⁹⁶	285289.78 ⁴	14890.7	193 ⁸⁷	99843	161 ⁸⁰	83327	203 ³⁷	104736	565 ³⁰	2911.30	147 ⁴⁴	1013.23 ²	2629	1361360 -		
Dia	265	LF	371 ⁴²	98426.200 ⁰⁴	5301.1	129 ⁶⁹	3444.7	108 ⁴⁸	2874.7	136 ³⁰	36135	344 ⁹⁷	70622	1088 ²⁶	3413.88	1718	455270 -		
Dia	430	LF	321 ⁴⁷	138232.167 ⁰³	71181.9	112 ⁵¹	48379	93 ⁸⁹	403.73	118 ⁰²	50749	251 ⁶¹	108192	164 ⁵²	4577.44	1420	610600 -		
	1	LS									L.S.	317625	L.S.	317625		L.S.	823781 -		
Shaft - 29'	600	LF	1307 ⁷³	784438.116 ⁸¹	70086	133 ⁵⁰	80100	124 ³⁶	7461.6	161 ³⁸	96804	344 ⁰⁴	206436	475 ⁵²	2851.2	7735 ⁷⁶	13411912	2981	1788600 -
29' I.D.	515	LF	1025 ⁹⁴	682402.122 ⁷¹	63227	132 ⁴³	68201	124 ³⁸	64056	140 ⁵⁸	82699	332 ⁰¹	174590	47 ⁵¹	2446.8	752 ⁷²	1159843	3003	1546545 -
18' I.D.	265	LF	1052 ⁶⁶	269044.94 ⁹²	25154	102 ⁴⁸	27157	95 ⁸⁹	2543.7	124 ³³	32947	264 ¹⁷	70005	36 ³³	762.7	1733 ⁴⁶	459371	2312	612680 -
15' I.D.	430	LF	848 ⁸⁴	365006.788 ⁸⁸	3391.8	82 ⁷⁰	37109	80 ⁶¹	34662	184 ⁶⁹	45017	223 ⁴⁶	76088	330 ⁷⁴	1321.8	1153 ⁶¹	625078	199	833770 -
ete)	635	Tn									177 ⁸⁹	125211.8	177 ⁸⁹	125211.8		2629	169445 -		
2.8 PENSTOCKS			31270.479	66175.8	56421.8	13092.4	58087.5	137624.9	164556.8	847212.1							11298421 -		
	580	LF	167 ⁵¹	387156.38 ⁰⁵	223909	733 ⁶²	135500	194 ⁹⁷	113083	245 ⁰⁷	142141	870 ⁵⁶	504925	2897 ⁷⁸	150671.4		3404	2009120 -	
39' I.D.	580	LF	1811 ⁸	1056284.141 ⁵⁹	93722	184 ⁷¹	107132	172 ⁴⁵	100021	222 ⁸⁹	129334	473 ⁶²	274468	65 ⁴²	37949	3101 ⁵⁷	1798910	4136	2398880 -
Followers	1	LS									L.S.	276650	L.S.	276650		L.S.	369321 -		
9 TAILRACE			14134.40	31763.1	24763.2	21310.4	27147.5	117937.2	21458.7	358227.4							4777321 -		
GENERATORS																			
	2	Ea									57880	1035760	57880	1035760		11245	1381290 -		
	2	Ea									493750	8607500	493750	8607500		57946	11478962 -		

BIDS OPENED _____ AT _____
 COMPLETION TIME _____ Date _____ Location _____
 BID BOND _____

DIVERSIFIED CONSTRUCTORS, INC.

JOB _____ WATANA - S
 FOR _____
 EST. BY _____ ART LEE

TRICK & MURRAY, SEATTLE 47263

COST & ESTIMATE SUMMARY

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
.21	Generators & Exciters	2	Ea							713,000.14300.000	713,000.14300.000
	SUBTOTAL - ACCOUNT 333 WATERWHEELS TURBINES & GENERATORS									539,432.60	539,432.60
333	ACCESSORY ELECTRICAL EQUIPMENT										
.334	Accessory Electrical Equipment	1	LS							1.5.145.66080.4	1.5.145.66080.4
	SUBTOTAL - ACCOUNT 334 ACCESSORY ELECTRICAL EQUIPMENT									115,660.80	115,660.80
335	MISCELLANEOUS POWER PLANT EQUIPMENT										
.335	Miscellaneous Power Plant Equipment	1	LS							1.5.403.71186.4	1.5.403.71186.4
	SUBTOTAL - ACCOUNT 335 MISCELLANEOUS POWER-PLANT EQUIPMENT									403,711.86	403,711.86
336	ROADS, RAIL & AIR FACILITIES										
.11	Permanent Access Roads										
.113	Maintain	358	MY	43697.156435261382	49475.61772	38384.769729	348298.215315	476605.4			789132822574.4
.12	Site Roads, Build	5	Mi	29871.134913512530	62650.110183	55091.57820	390650.10003	545165.16398	3417990		123301631650.5
.121	Site Roads, Maintain	5	Mi	57155.285675016591	132955.12200	611500.10559	532775.14777	808985			988597494298.5
.13	PERMANENT ROADS (SITE)										
.131	Build Permanent Roads	2800	Ft	31.25 87500.121	4788.1081	30268.827	23156.1119	31332.5959	161352		11982 343876.1
.132	Maintain	34	MY	43697.14856981382	46988.10722	36454.89729	330786.13313	452642			78813256066.2
.2	RAIL FACILITIES										
.202	Operate & Maintain	66	MO	97177.62156823870	255420.1832	121123.21593	1050258.23763	1581558			1827510314150
.3	AIRSTRIP										
.303	Operate & Maintain	66	MO								0
	SUBTOTAL - ACCOUNT 336 ROADS, RAIL & AIR FACILITIES			27039291	997557	6606939	5812627	9185726	3584842		52923792

DIVERSIFIED CONSTRUCTORS, INC.

JOB WATANA - STAGE 3 NO.
 FOR DATE
 EST. BY ART LEE SHEET 7 OF

COST & ESTIMATE SUMMARY

	QUANTITY	UNIT	CONSTRUCTION	CONSTRUCTION	EQUIPMENT	EQUIPMENT	EQUIPMENT	PERMANENT	SUB-CONTRACTS	TOTAL	TOTAL COST		BID	
			LABOR & INSURANCE	SUPPLIES	REPAIR LABOR	RENT	SUPPLIES	MATERIALS		DIRECT COST	Unit Cost	Amount	Unit Cost	Amount
T. 333 WATERWHEELS & GENERATORS	2	Ea							715000	14300000	715000	14300000	715000	14300000
333 WATERWHEELS & GENERATORS									23943260	23943260			31930732	
333 ACCESSORY ELECTRICAL EQUIPMENT	1	LS							L.S. 14566080	L.S. 14566080			19425324	
333 ACCESSORY ELECTRICAL EQUIPMENT									14566080	14566080			19425324	
333 PLANT EQUIPMENT	1	LS							L.S. 4037186	L.S. 4037186			5383991	
333 MISCELLANEOUS PLANT EQUIPMENT									4037186	4037186			5383991	
333 FACILITIES	358	MY	15643526	494756	3838476	9129	3482982	13315	4766054	7801328225			10515376	11910
333 FACILITIES	5	Mi	20871	1349135	12530	22650	110183	550915	78120	590150	10003	545165	18396	3417990
333 FACILITIES	5	Mi	20871	1349135	12530	22650	110183	550915	78120	590150	10003	545165	18396	3417990
333 FACILITIES	5	Mi	20871	1349135	12530	22650	110183	550915	78120	590150	10003	545165	18396	3417990
333 FACILITIES	2800	Fl	3125	87500	171	4788	1081	30268	827	23156	1119	31332	5959	166852
333 FACILITIES	34	MY	1485698	46988	1772	36454	89129	330786	13313	452642			78843	2680662
333 FACILITIES	66	MO	1215682	255420	18352	1211232	15913	1050258	23763	1581558			15275103	14150
333 FACILITIES	66	MO												
336 ROADS, RAIL FACILITIES			27639291	997557	666939	5816627	2785736	3584842		52823792			7044076	

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BIDS OPENED _____ AT _____
 COMPLETION TIME _____ Date _____ Location _____
 BID BOND _____

DIVERSIFIED CONSTRUCTORS, INC.

JOB _____ WATANA - S

FOR _____

COST & ESTIMATE SUMMARY

EST. BY _____ ART LEE

TRICK & MURRAY, SEATTLE 67282

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
350 -											
359	TRANSMISSION PLANT (Divided by 10 Units to Allow for 9 Numbers)	10	LS	9325573	476125	1044806	706628	818686	8434528	9044778	L.S. 29853124
	SUBTOTAL - ACCOUNT 350-359			9325573	476125	1044806	706628	818686	8434528	9044778	29853124
	TRANSMISSION PLANT										
399	OTHER TANGIBLE PROPERTY	1	LS							2200000	L.S. 2200000
	SUBTOTAL - ACCOUNT 399. OTHER TANGIBLE PROPERTY									2200000	2200000
(63)	CONSTRUCTION FACILITIES										
.1	CONSTRUCTION CAMPS & PERMANENT VILLAGE									L.S. 18076662	L.S. 18076662
.11	Build Main Camp	1160	U							L.S. 5806450	L.S. 5806450
.12	Build Construction Village	240	U							L.S. 8964483	L.S. 8964483
.13	Build Permanent Town (208)	23	U							L.S. 875000	L.S. 875000
.14	Salvage Camp & Village	1	LS							L.S. 357500	L.S. 357500
.6	Catering & Support										
.61	Direct Labor	562000	MD							3850 21637000	3850 21637000
.62	Indirect Labor	206000	MD							3850 7931000	3850 7931000
.63	Owner's Representatives	146000	MD							3850 5621000	3850 5621000
.64	Family Stat. Allow.	62000	MD							3850 2387000	3850 2387000
.7	ELECTRICAL POWER										
.71	34.5 KV. System	1	LS							L.S. 357500	L.S. 357500
.72	Camp Power	66	MO							4740 9702000	4740 9702000
.73	CONSTRUCTION POWER (Indirect Cost)										

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COST & ESTIMATE SUMMARY

JOB WATANA - STAGE 3 NO. _____
FOR _____ DATE _____
EST. BY ART LEE SHEET 8 OF _____

COST & ESTIMATE SUMMARY																
	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST	TOTAL COST		PID		Unit Cost	Amount
											Unit Cost	Amount	Unit Cost	Amount		
(Divided by 10 Numbers)	10	LS	9325573	476125	1044806	706628	818686	8434528	9044778	L.S. 29853124			L.S. 29812126			
350-359																
MISSION PLANT			9325573	476125	1044806	706628	818686	8434528	9044778	29853124			29812126			
PROPERTY	1	LS								2200000	L.S. 2200000		L.S. 2933920			
399 OTHER PROPERTY										2200000	2200000		2933920			
TIES & PERMANENT VILL.	1160	U								L.S. 18076662	L.S. 18076662		L.S. 29405229			
ge	240	U								L.S. 5806450	L.S. 5806450		L.S. 7742901			
(208)	23	U								L.S. 8964483	L.S. 8964483		L.S. 11954138			
	1	LS								L.S. 875000	L.S. 875000		L.S. 1166312			
	562000	MD								38 ⁵⁰ 21637000	38 ⁵⁰ 21637000		51 ³¹ 28853080			
	206000	MD								38 ⁵⁰ 7931000	38 ⁵⁰ 7931000		51 ³¹ 10576040			
	146000	MD								38 ⁵⁰ 5621000	38 ⁵⁰ 5621000		51 ³¹ 7495140			
	62000	MD								38 ⁵⁰ 2387000	38 ⁵⁰ 2387000		51 ³¹ 2182080			
	1	LS								L.S. 357500	L.S. 357500		L.S. 785294			
(Indirect Cost)	66	MO								14740 9702000	14740 9702000		1402512937450			

JOB WATANA

FOR _____

EST. BY ART LEE

COST & ESTIMATE SUMMARY

TRICK & MURRAY, SEATTLE 42203

	ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
.8		CONSTRUCTION HEATING & VENTILATING										
.81		Plant	1	LS							L.S., 1650000	L.S., 165000
.82		Operation (Indirect Costs)									L.S., 5445000	L.S., 544500
		SUBTOTAL - ACCOUNT_(63)_CONSTRUCTION									\$945307.5	\$945307
(68)		MITIGATION Mitigation	1	LS							L.S. 25449000	L.S. 2544900

DIVERSIFIED CONSTRUCTORS, INC.

JOB WATANA - STAGE 3 NO.

FOR DATE

EST. BY ART LEE SHEET 9 OF

COST & ESTIMATE SUMMARY

	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB CONTRACTS	TOTAL DIRECT COST	TOTAL COST		BID			
											Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
VENTILATING	1	LS							L.S. 1,650,000	L.S. 1,650,000			L.S. 2200275			
									L.S. 5445000	L.S. 5445000			L.S. 7260708			
CONSTRUCTION									8845309.5	8845309.5			117961097			
	1	LS							L.S. 25649000	L.S. 25649000			L.S. 25649000			

BIDS OPENED _____ AT _____
 COMPLETION TIME _____ Date _____ Location _____
 BID BOND _____

DIVERSIFIED CONSTRUCTORS, INC.

JOB _____ WATANA - S

FOR _____

EST. BY _____ ART LEE

COST & ESTIMATE SUMMARY

FRICK & MURRAY, SEATTLE 47282

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
330	Land & Land Rights										
331	Powerhouse			3,911,056.3	827,944	1,243,317	813,921	1,262,128	2,745,205	901,600.0	901,600.0
332.1	Reservoir Clearing			11,713,351	265,815	1,549,185	1,001,065	1,409,410		211,296.7	28,186.1
332.2	Diversion Tunnel			5,647.0	674.0	824.3	728.3	94,558	25,758	881	16,139.15
332.22	U/S Cofferdam										
332.23	D/S Cofferdam			1,159,946	978.2	183,566	45,438	1,961,63		7,174.0	1,636,475
332.3	Main Dam			82,272,378	34,023.7	39,022,388	47,510,194	62,134,140	1,069,910	5,104,198	211,715,525
332.4	Relict Channel			3,712,137.1	1,327,138	23,525,36	3,158,246	3,715,251.0			13,177.7
332.51	Outlet Facilities										
332.52	Main Spillway			21,539,014	1,652,948	48,444,11	4,319,734	5,445,093	221,950,00	531,7800	652,140,60
332.6	Power Intake			13,385,999	130,411.76	2,3078.47	2,183,604	2,635,531	7,809,122	5,775,377	37,401,676
332.70	Surge Chamber			2,531,415	8,498,52	76,483.5	6,823.81	81,270.2	18,777,93	2,233,18	77,418.7
332.8	Penstocks & Shafts			3,777,049.9	66,175.8	50,621.8	43,073.4	51,089.5	1,376,749	16,555.8	7,472.21
332.9	Tailrace			1,112,140	21,763.1	24,763.2	21,316.4	271,475	7,773.93	31,459.5	3,512,271.5
333	Waterwheels, Turbines & Generators									23,943,760	23,943,760
334	Accessory Electrical										
335	Miscellaneous Power Plant									15,456,608.0	15,456,608.0
336	Roads, Rail & Air Facilities			776,382.91	97,755.7	660,693.9	581,062.7	818,513.6	2,524,84.2	4,027,186	4,027,186
350	Transmission										
359	Transmission			9,325,513	47,612.5	1,046,806	70,662.8	81,968.6	8,134,524	9,044,778	29,853,11
399	Other Tangible Property									220,000.0	220,000.0

DIVERSIFIED CONSTRUCTORS, INC.

COST & ESTIMATE SUMMARY

JOB WATANA - STAGE 3 NO.
 FOR ART LEE DATE
 EST. BY SHEET 10 OF

Location
 BID BOND

QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST	TOTAL COST		BID	
										Unit Cost	Amount	Unit Cost	Amount
								LS 9016000	LS 9016000			LS 9016000	
		28110543	827944	1243317	813727	1262128	2745805	2113867	12818601			17174902	
		11713390	265815	1549185	1001065	1609410			16138815			21522724	
		56378	6740	8243	7283	9458	25158	881	114733			153008	
		159946	9782	183566	45438	196163		74141	1836495			2182430	
		82272378	34602317	39027388	47510194	62134140	1069910	5104198	27715525			342353189	
		3121871	132788	2352536	3158246	3752510			13117917			17494654	
		21539094	1652948	4834411	4319734	5445073	22195000	5317800	45314060			87102830	
		18385999	1304176	2307847	2183604	2635521	7809122	5775277	27401656			49878848	
		2531485	849852	764825	682384	812702	1871793	223318	7741859			10324545	
		3770099	661758	506218	130724	510875	1376707	1645528	9472121			11298421	
		1042300	3176431	245622	212104	271475	777273	311597	35172214			4777321	
								23943760	23943760			31920732	
Generators								LS 14566080	LS 14566080			19425324	
								LS 4037186	LS 4037186			538391	
												70446076	
		77638291	777557	6606939	5810627	9185976	3584842		2823792				
		9325513	476125	1046806	104628	819686	8434529	9024778	29853124			39812126	
								2200000	22000000			2933920	

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JOB WATANA
FOR _____
EST. BY ART LEE

COST & ESTIMATE SUMMARY

COMPLETION TIME				COST & ESTIMATE SUMMARY								TOTAL DIRECT COST
ERIC & MURRAY, SEATTLE 47269				CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST	
ITEM NO.	DESCRIPTION	QUANTITY	UNIT									
(63)	Construction									84,530.15	84,530.15	
(68)	Mitigation									16,256,490.00	256,490.00	
GRAND TOTALS				181,168.785	421,055.83	10,718.773	10,743.158	87,714.487	51,892.400	181,464.07	188,455.71	

0 0 3 5 7 0

COST & ESTIMATE SUMMARY

JOB WATANA - STAGE 3 NO. _____
FOR _____ DATE _____
EST. BY ART LEE SHEET 11 OF _____

[illegible]

COST & ESTIMATE SUMMARY

COST & ESTIMATE SUMMARY												EST. BY	ART LEE
ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST	Un Co	
330	Land & Land Rights									LS 22440000	LS 22440000		
331	Powerhouse			38116563	827944	1243377	873927	1262124	2745805	2113867	72818601		
332.1	Reservoir Clearing			11713350	2654115	1549185	7001005	1609410			16138815		
332.2	Diversion Tunnel			56370	6740	8243	7283	9458	25158	881	114733		
332.27	U/S Cofferdam												
332.28	D/S Cofferdam			459946	9982	183566	45438	196163		741461	1634495		
332.3	Main Dam			30037514	9116053	13363588	16130298	20525284	10699110	5104198	98396845		
332.4	Relict Channel			3721827	132738	2352526	3158246	2752570			6117917		
332.51	Outlet Facilities												
332.52	Main Spillway			21539074	1652948	4844411	4319734	5445093	22195000	5317800	85314080		
332.6	Power Intake			13385999	1304176	23078417	2183604	2635531	98091212	5775327	374026561		
332.70	Surge Chamber			2531485	8498512	764825	682384	812202	1877793	223318	7741859		
332.8	Penstocks & Shafts			370099	661758	506218	430934	510175	1376247	1645588	8412121		
332.9	Tailrace			1442440	317631	247632	213104	271475	77273	314597	3522774		
333	Waterwheels, Turbines & Generators									23943260	23943260		
334	Accessory Electrical									LS 4566080	LS 4566080		
335	Miscellaneous Power Plant									LS 4037186	LS 4037186		
336	Roads, Rail & Air Facilities			77638291	977557	6604939	5810627	8185786	3584842		5823992		
350-													
359	Transmission			9323513	476125	1044896	706628	818686	8434528	9244778	29853124		
399	Other Tangible Property									2200000	2200000		

DIVERSIFIED CONSTRUCTORS, INC.

COST & ESTIMATE SUMMARY

JOB WATANA - STAGE 3 NO.
 FOR DATE
 EST. BY ART LEE SHEET OF

QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST	TOTAL COST		BID		Unit Cost	Amount	
									Unit Cost	Amount	Unit Cost	Amount				
								LS 7244000.0	LS 7244000.0			LS 22440000	-			
		3810563	827944	1243377	878927	1260128	274580.5	2113867	7287860.7			17174908	-			
		11913350	2658415	1549185	7001065	1609440			1613881.5			21522724	-			
		56370	6740	82103	7283	9458	25758	881	114733			153008	-			
		459946	9982	183566	45438	196163		741400	1636495			2182450	-			
		30037544	9116053	13363588	16130298	20525284	10689410	5104198	95396845			12701613	-			
		3727827	137738	2352526	3158246	2452570			73117917			17494054	-			
															331995782	
		21539074	1652948	4844411	4319734	5445093	22195000	5317800	65314060			87102830	-			
		13385999	1304176	2307847	2183604	2635531	9809122	5775377	37402656			49578048	-			
		2531485	849852	764825	682384	812202	18777793	223318	7741859			10524543	-			
		2770099	661758	506218	430934	580875	1376747	1645585	8472121			11298421	-			
		1043040	317631	247622	213164	271475	777273	314597	3582274			4977321	-			
Generators									23943260	23943260			91930732	-		
								LS 44566080	LS 44566080			19465324	-			
								LS 4037186	LS 4037186			5588771	-			
		27638294	977557	6604939	5840627	8185736	3584842		52823992			70446076	-			
		9325563	476125	1046806	706628	848686	8434528	9044778	29853124			39610126	-			
								2200000	2200000			2933920	-			

PRICE & MURRAY, PLATE 47203

JOB WATANA -
FOR _____
EST. BY ART LEE

	QTY	UNIT PRICE	TOTAL
GRAND TOTALS			

COST & ESTIMATE SUMMARY										EST. BY ART LEE	
ITEM NO.	DESCRIPTION	QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
(63)	Construction										
(68)	Mitigation										
GRAND TOTALS				17918921	16619319	55020173	35863262	46105631	51898400	128480010	51960113

003570

INDIRECT
COST

December 24, 1985

Mr. Arthur O. Lee, President
Diversified Engineers, Inc.
P. O. Box 487
Cottonwood, Arizona 86326

Dear Art:

Subject: Cost Estimates for Susitna
Three-Stage Development Plan

In accordance with your authorization dated November 19, 1985, we have prepared preliminary estimates of the cost of the following items for the Susitna Three-Stage Development Plan:

- o Environmental Mitigation
- o Land and Land Rights

We understand these estimates will be combined with your estimates of costs for other elements of the proposed project to arrive at an independent, feasibility-level cost estimate for the entire project.

As agreed, we have not attempted to do independent research as to the ownership of project lands or extensive analyses of mitigation requirements, but instead have relied on the data available in the amended Application for Amendment of License (Application) for the staged project, plus numerous personal discussions with various authorities, as the basis for our numbers.

In preparing these cost estimates, we conducted telephone interviews with various staff members from Harza-Ebasco in Chicago and Alaska, Landfield Services, the Alaska Power Authority, the Bureau of Land Management and a number of other key resource agencies in Anchorage. We also held individual meetings in Anchorage with the following entities:

- o Alaska DNR - Division of Parks and Recreation
- o Alaska Department of Fish and Game
- o Alaska Power Authority
- o State Office of History and Archaeology
- o National Marine Fisheries Service
- o Harza-Ebasco
- o Entrix, Inc.

Our efforts to develop estimates of land costs were hampered by the fact that the acreage data tabulated in Exhibit A of the Application does not agree with the acreages we calculated by planimetry areas from the Exhibit G drawings. Our rough calculations showed a significantly greater number of acres than indicated in Exhibit A, and our cost estimates therefore are based on these higher preliminary estimates of the total acreage required for the

three stages of development. Also, we had intended to review the previous land cost estimates developed by Harza-Ebasco to determine the basis for their unit costs applied to the various categories of land ownership. To date we have been unable to obtain this information, and have therefore had to rely solely on information on land costs we obtained by telephone from a number of sources, including the Bureau of Land Management, Landfield Services and Harza-Ebasco. It should be noted that the total land and land rights costs are extremely sensitive to unit land values and none of the entities we contacted were willing to make estimates that could be quoted.

The following discussion describes the work we conducted to arrive at estimates for the two items. Two tables are also included to summarize the results.

ENVIRONMENTAL MITIGATION

Introduction

These estimates are based on environmental mitigation requirements as outlined in the Application filed with the FERC by APA as prepared by Harza-Ebasco. Estimates of mitigation costs for the staged-project were provided to us for review by James H. Thrall on 10/10/85. Additional updated cost estimates were also made available by Harza-Ebasco on 12/17/85 at a meeting in Anchorage.

In addition to meeting with Harza-Ebasco and their subconsultant, Lawrence L. Moulton of Entrix, Inc., we held meetings with involved staff members from ADF&G, DNR, NMFS and USFWS. More than 12 persons were contacted during our review and we believe the comments and caveats accompanying our estimates clearly illustrate the strengths and weaknesses of these estimates. We have tried to identify why estimates are weak or subject to various constraints whenever possible so that the APA can better judge their validity.

There are a number of general assumptions that prevail throughout our consideration of cost estimates for particular resource mitigation plans. These assumptions are:

- o All cost estimates are based on 1985 dollars.
- o Cost estimates do not include any owner's administrative costs.
- o Cost estimates do not include any contingency costs.
- o Mitigation for impacts to aesthetic resources are assumed to be approximately \$500,000, the greatest part of which will involve measures taken during construction to reduce adverse aesthetic impacts. This amount has been arbitrarily divided into \$250,000 for Stage I, \$125,000 for Stage II and \$125,000 for Stage III, based upon the level of development perceived to be associated with each stage.

- o All annual operation and maintenance (O&M) costs for the first nine years (through the initial stage of construction corresponding to a power on-line date of 1999) are included in the construction cost estimates. This is the same assumption made by Harza-Ebasco for the Exhibit D cost estimates.

- o Long-term monitoring and O&M are not included in the estimates.

The primary objectives of our review were as follows:

- o Determine if any major mitigation issues exist that were unaddressed in the Application. Such issues could involve significant additional costs associated with the inclusion of license conditions requiring mitigation measures.
- o Determine if the scheduling of mitigation measures included in the application for the three stage proposal meet general agency approval, i.e. are any major shifts in expenditures from one stage of development to another anticipated?
- o Determine, insofar as possible, the reasonableness of the projected cost estimates based upon consultation with responsible agencies and readily available current cost information.

Where information is scarce or lacking, or where estimates cannot be verified for some other reason, we have included a brief statement explaining why that particular estimate is "soft". If more information is judged necessary before a firm estimate can be reached, this need is highlighted. To some degree the above caveats apply throughout our analysis but we have tried to indicate specifically where estimates must be viewed with particular caution. Mitigation costs associated with each significant resource area are discussed below.

Recreational Resources Mitigation

Jack Wiles, South Central Regional Manager for the Division of Parks and Outdoor Recreation, discussed costs associated with recreational resources and noted that the key issue bearing on any recreation plan is that of access, an unknown at this time. At a time when the Division's funds are being cut back, Jack noted that some rationale for prioritizing new sites is important. He does not want to see dollars for Susitna mitigation added to the DNR budget base, only to have the legislature reduce funding and FERC require DNR dollars be spent on Susitna as part of a license article. If costs are to be borne by the Applicant, as is suggested in the Application, DNR will be ready to contract the Division's services to APA.

Specific features and their costs are difficult to check exactly but a review of shop work order cost estimates and an average of 1985 construction contract costs provided by the Division plus RIM cost figures

from the Chugach National Forest indicate that costs presented in Table E.7.7.1 of the application represent those currently being experienced for these items and services.

We conclude from this review that the costs identified by Harza-Ebasco are representative of costs involved with the mitigation plan as it is proposed in the Application. Should the plan change as a result of changes in access route selection or agency input to the FERC, costs will, of necessity, shift to reflect those changes.

We assume the five-phase Recreation Plan proposed by Harza-Ebasco meshes with the three-stage project development plan in roughly the following manner:

<u>Project Stage</u>	<u>Recreation Plan Phase</u>
I	Phase 1 and 2
II	Phase 3
III	Phase 4 and 5

On the basis of the above breakdown, the costs associated with each phase have been translated into project stages. Operation and maintenance costs have also been translated from plan phases to project stages.

<u>Project Stage</u>	<u>Rec. Plan Costs</u>	<u>Recreation O&M Costs</u>	<u>Total Costs</u>
I	\$ 764,700	\$ 355,150	\$1,119,850
II	\$1,499,900	\$ -0-	\$1,499,900
III	\$ 721,550	\$ -0-	\$ 721,550
Subtotal	\$2,986,150	\$ 355,150	\$3,341,300

Notes:

- 1) All assumptions incorporated by Harza-Ebasco in the footnote to Table E.7.7.1 also apply to the above estimates.
- 2) Stage III O&M includes all O&M for remaining time of 50 year license period. O&M costs, therefore, underestimate slightly the future equipment requirements, e.g. pickups will not last 50 years.
- 3) Assumes O&M costs for Stages II and III are incorporated into overall Project O&M costs for the economic analysis and therefore not a direct construction cost.

Cultural Resources Mitigation

Discussions with Judith E. Bittner, SHPO, and Tim Smith, Senior Archaeologist, of the Office of History and Archaeology disclosed that no

historic/archaeological mitigation plan has been agreed to despite the references to agency consultation in the Application for Amendment of License. At this point there seems to be a pretty good idea of how many sites are involved, according to Smith, but these identified sites have not yet been evaluated. He suspects a few sites will prove to be very important, requiring considerable excavation and recovery while the vast majority are small and may be quite similar in content. Loss of these latter sites can be adequately mitigated through a good sampling program. The number of sites involved also depends on the route selected for the access road. Coming south from the Denali Highway, terrain offers more freedom to shift road alignments slightly to avoid sites. The route from the Parks Highway is more constrained, especially for the railroad spur, and the ability to avoid sites is reduced.

Both Smith and Bittner believe the distribution of costs between the three stages is reasonable given the degree of impact involved at the various times. Costs for mitigation will, in their estimation, probably be about the same for either route despite the possibility of avoiding more sites along the Denali corridor. They noted that the University of Alaska Museum's estimate for mitigation under the original concept (10 percent sample over 6.2 years for \$11.1 million; 25 percent sample over 12.4 years for \$22.2 million) was a great deal higher than that proposed by Harza-Ebasco. They believe that the Museum's estimates are considerably higher than what will be required to complete an agreed-upon mitigation plan but that the Harza-Ebasco estimates may be somewhat low.

Staged development is estimated by Harza-Ebasco to cost up to a total of \$5,587,000 (70% for Stage I, 5% for Stage II and 25% for Stage III). We also assume the Harza-Ebasco figures to be somewhat low because our experience indicates that the FERC will expect a sophisticated mitigation scheme that will result in somewhat higher sampling costs than have been estimated. We estimate that cultural resource mitigation will eventually cost approximately the following amounts for the three stages:

Stage I	\$ 9,730,000
Stage II	\$ 695,000
Stage III	\$ 3,475,000
TOTAL	\$13,900,000

These values were derived by adding the Harza-Ebasco and high Museum estimates and dividing that sum in half ($5.6 + 22.2 = 27.8/2 = 13.9$). This value was then multiplied by the percent Harza-Ebasco estimated for each stage (Stage I, 80%; Stage II, 5%, Stage III, 25%).

Fish, Wildlife and Botanical Resources Mitigation

Several assumptions have been made regarding the cost estimate for fish, wildlife and botanical resource mitigation. In general, mitigation measures to offset losses expected from Stage I, II and III developments affecting fish resources will be implemented during the construction and

operation of Stage I because the greatest impacts within the Project area and along the middle Susitna downstream of the Project are expected to result from the initial development (E.3.2.277). The costs for downstream mitigation are based on modifications to Sloughs 8A, 9, 9A, 11, 21 and side channels 11 and 21. Finally, Case E-VI flow constraints were assumed to prevail during the construction and operation of Stage I.

Discussions with representatives of the ADFG, FWS and NMFS were held on December 16 and 17, 1985 in Anchorage, Alaska. It soon became apparent during these discussions that several factors were commonly held as key determinants governing mitigation-related costs. One of these is the caveat that the cost of many of the long-term mitigation measures proposed will eventually be determined during the proposed monitoring programs. Other costs, such as those related to the placement or enhancement of terrestrial habitat for moose, depend upon the completion of the model being used by ADFG to estimate the amount of land required for moose mitigation. The data have not yet been run through the model so the figure of 24,500 acres (Table E.3.4.71) and associated costs must be considered preliminary. Harza-Ebasco biologist Randal L. Fairbanks estimates that figures in the Application are sufficient to cover any final amount of acreage required for mitigation treatment.

Another significant point raised by all parties consulted was that costs associated with any private lands included in wildlife mitigation, particularly those involving Prairie Creek (Table E.3.4.69), are unknown at this point in time. The use of BLM and DNR lands for wildlife mitigation is assumed without cost according to Harza-Ebasco staff.

There seems to be general agreement among the agencies that the proposed mitigation measures and their scheduling adequately address major mitigation elements identified by the agencies. The FWS seems to be the only agency strongly opposing the proposed road access route running south from the Denali Highway. Most concerns center upon points that remain to be negotiated during those several Memorandums of Understanding to be developed between APA and the respective agencies, that will address specific mitigation plans. These points involve preparing the detailed plans required to expand and quantify the overall concepts already agreed to. Such refinements should not result in significant changes in projected costs but will involve assigning costs to specific actions selected as part of mitigation. For example, periodic flushing of side channels and sloughs may be accomplished by either flow manipulation, mechanical gravel cleaning or a combination, each method having a specific cost associated with it. Another refinement involves completing documentation of proposed flows and their effects on the environment and project economics before a final flow regime can be agreed upon. Even though alternative E-VI "looks pretty good" according to Brad K. Smith, NMFS, the final flow regime remains to be agreed upon.

Given the above constraints and caveats, we have identified the following costs for mitigating impacts to fish, wildlife and botanical resources based upon a staged development plan. These cost estimates are presented in Table 1 for each stage.

LAND AND LAND RIGHTS COSTS

The land and land rights costs for the three-stage development of the Susitna Project are estimated to be \$14,184,000 for Watana-Stage I, \$9,781,000 for Devils Canyon - Stage II, and \$9,016,000 for Watana-Stage III. These costs reflect a January 1985 land value and assume the purchase of Alaska Native Corporation lands and the leasing of U. S. lands within the project boundary. The project boundary encompasses an estimated 77,168 acres. This new estimate was derived by planimetry of the project boundary for the dam and reservoir shown in Exhibit C. The project acreages presented in Exhibit A for the transmission line and access road corridors were assumed to be correct. A summary of project acreages and costs for each development stage is shown in Table 2. The appraised land value for Native corporation lands is based on telephone conversations with Harza-Ebasco and Alan Olsen of Landfield Services and Beck's in-house experience with land costs for other Alaska projects. The estimate U. S. land use fees is based on telephone conversations with BLM and FERC, and on FERC's regulations outlined in 18 CFR Ch. 1 (4-1-85 Edition) Section 11.21 paragraph b.

SUMMARY OF COSTS

The following table summarizes our estimates for the two items discussed above:

Item	Estimated Costs in 1985 Dollars			Total
	Stage I	Stage II	Stage III	
Land and Land Rights Costs	\$14,184,000	\$ 9,781,000	\$9,016,000	\$ 32,981,000
Environmental Mitigation Costs	\$64,399,000	\$18,972,000	\$25,649,000	\$109,020,000

Because our estimates of costs for the two items requested are founded on a broad information base of some of which is still incomplete at this stage of project planning, we have attempted to carefully outline the basis for our numbers so you will have a good understanding of how the estimates were developed. We must emphasize that the estimates are very rough at this point due to the fact that project mitigation plans have yet to be completed. Therefore, we suggest that you supply APA with a copy of this backup information for their review so they will have a chance to modify

- 8 -

numbers if so desired based on differing assumptions. Please feel free to call us if you have any questions regarding these estimates, or need further clarification of our results.

Very truly yours,

R. W. BECK AND ASSOCIATES


for Donald R. Melnick
Partner

HEL/DRM/rhm

TABLE 1
ENVIRONMENTAL MITIGATION COSTS
JANUARY 1985 PRICE LEVEL⁽¹⁾

Items	Stage I Watane (\$000)	Stage II Devil Canyon (\$000)	Stage III Watane (\$000)	Remarks
1. Outlet Facilities	\$0	\$0	\$0	(2)
2. Restoration of Borrow Area D	0	0	0	Included in No. 5.
3. Restoration of Borrow Area F	0	0	0	Included in No. 5.
4. Restoration of Camp and Village	640	640	625	(3)
5. Restoration of Construction Sites	11,500	1,500	10,000	(3)
6. Fencing Around Camp	300	300	380	(3)
7. Fencing Around Garbage Disposal Area	0	0	0	Included in No. 6
8. Multilevel Intake Structure	0	0	0	(2)
9. Worker Amenities	12,300	8,100	7,400	(3)
10. Restoration of Haul Roads	0	0	0	(3)
11. Slough Modifications	1,360	0	0	$(\$1,086^k + \$30^k/\text{yr thru 1999})$
12. Habitat Management on Mitigation Lands	1,860	620	540	$(\$2,800^k + \$25^k/\text{yr thru 1999})$
13. Raptor Compensation	440	0	0	$(\$350^k + \$10^k/\text{yr thru 1999})(3)$
14. Cultural Resource Mitigation	9,730	695	3,475	See text for basis.
15. Long Term Environmental Monitoring During Stage I Construction	6,780	2,780	2,040	Based on discussion with Harsco-Ebasco 12/17/85.
16. Development of Permanent Recreation Facilities and Visitor Center	1,120	1,500	722	See text for basis.
17. Impoundment Modifications	1,120	0	0	$(\$940^k + \$20^k/\text{yr thru 1999})$
18. Other Wildlife Monitoring 1,332 years		0	0	$(\$218^k/\text{y} - (\$60^k + 10^k)) \times 9$
19. Community Infrastructure	4,667	2,712	342	(3)
20. Worker Transportation	11,000	0	0-	(3)
21. Aesthetics	250	125	125	See text for basis.
Subtotal	\$64,399	\$18,972	\$25,649	
Total Mitigation Cost				\$109,020,000

(1) Format from Table D.1.2.1 of Exhibit D of Application for Amendment of License.

(2) Assumed to be incorporated in construction cost estimates for project features prepared by others.

(3) No change from Harsco-Ebasco estimate per Exhibit D of Application.

TABLE 2

PROJECT LAND AND LAND RIGHTS COST
JANUARY 1985 PRICE LEVEL

<u>Project Development</u>	<u>Acreage</u>	<u>Land Cost</u>
Watana - Stage I		
Production Plant		
U. S. Lands	30,425 ⁽¹⁾	\$10,290,000 ⁽⁵⁾
Native Corp. Lands	4,015 ⁽¹⁾	3,212,000 ⁽⁶⁾
Transmission Plant		
U.S. Lands	1,843 ⁽³⁾	623,000 ⁽⁵⁾
Native Corp. Lands	76 ⁽²⁾	59,000 ⁽⁶⁾
TOTAL	36,357±	\$14,184,000
Deville Canyon - Stage II		
Production Plant		
U.S. Lands	3,283	1,110,000 ⁽⁵⁾
Native Corp. Lands	10,815	8,652,000 ⁽⁶⁾
Transmission Plant		
U.S. Lands	56 ⁽³⁾	19,000 ⁽⁵⁾
Native Corp. Lands	---	---
TOTAL	14,154±	\$ 9,781,000
Watana - Stage III		
Production Plant		
U.S. Lands	26,350 ⁽⁴⁾	8,912,000 ⁽⁵⁾
Native Corp. Lands	---	---
Transmission Plant		
U.S. Lands	307 ⁽³⁾	104,000 ⁽⁵⁾
Native Corp. Lands	---	---
TOTAL	26,657±	\$ 9,016,000
GRAND TOTAL	77,168±	\$32,981,000

- (1) Acreage is a percentage of total area required for Watana Dam and Reservoir plus access road right-of-way.
- (2) All Native corporation lands within the Stage III Watana development including all lands within the transmission corridor are assumed to be purchased during Stage I development.
- (3) The amount of U.S. lands to be leased for the transmission corridor is determined from incremental corridor width required for each stage of development.
- (4) Acreage represents difference between total U.S. lands required for final (Stage III) Watana development and Stage I development.
- (5) Present worth of fees to be paid for the use of U. S. lands over the 50-year license period. Annual fees are estimated based on procedures outlined in FERC regulations as follows:
- Annual Use Fee = interest rate x \$150 per acre
- Interest rate is assumed to be 9% annually and annual fees are assumed to escalate at an annual rate of 3.5%. For present worth analysis, discount rate was assumed to be 9%.
- (6) Assumes an average appraised land value of \$800 per acre for native corporation lands, in 1985 dollars.

DIRECT
COST

01500

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

ITEM NO. 330 SHEET OF PAGE 1

OPERATION Land & Land Rights

JOB Watana - Stage 3

BID QUANTITY 1 UNIT LS TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

BID QUANTITY		UNIT		TAKE OFF QUANTITY		EST. BY		DATE		CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
1		LS				Art Lee																			
PLUG-SUBJECT TO R.V. BECK				1	LS																	LS 2440000		LS 2440000	

OPERATION Powerhouse & Tailrace Excavation, Rock

JOB Watana - Stage 3

BID QUANTITY 46.515 UNIT CY TAKE OFF QUANTITY

EST BY Art Lee

DATE _____

[illegible]

OPERATION Drill & Grout U/S of Powerhouse

ITEM NO. 331.113 SHEET OF PAGE 2

108 Watana - Stage 3

BID QUANTITY 14.910 UNIT LF TAKE OFF QUANTITY

ES1, BY Art Lee

DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Concrete

ITEM NO. 331.114 SHEET _____ OF _____ PAGE 4

Job Watana - Stage 3

BID QUANTITY 12,470 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

BID QUANTITY		UNIT		TAKE OFF QUANTITY		EST. BY		DATE		CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
PER ORIGINAL - ESCALATE & INEFFICIENCY						12470	CY	10555	1316809	1080	1344716	1104	200919	1382	172834	1834	208720	7336	914777	1620	199520	25385	3166757		

OPERATION Drain Holes

ITEM NO. 331.116 SHEET OF PAGE 5

JOB Watana - Stage 3

BID QUANTITY 14,810 UNIT LF TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Metalwork

ITEM NO. 331.117 SHEET OF PAGE 6

JOB Watana - Stage 3

BID QUANTITY 1 UNIT LS TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

003570

OPERATION Architectural

ITEM NO. 331.118

- SHEET - OF - PAGE 2

 J08 Watana - Stage 3

BID QUANTITY 1

UNIT LS

TAKE OFF QUANTITY

EST. BY

Art Lee

DATE _____

[illegible]

003570

OPERATION Mechanical

ITEM NO. 331.119 SHEET OF PAGE 1

JOB Watana - Stage 3

BID QUANTITY 1 UNIT LS TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

OPERATION Tunnel Slab Concrete

ITEM NO. 331.128 SHEET OF PAGE 10

OPERATION Tunnel Slab Concrete

JOB Watana - Stage 3

EST. BY Art Lee

DATE _____

BID QUANTITY 116 UNIT CY TAKE OFF QUANTITY

EST. BY Art Lee

[illegible]

OPERATION Penstock Access Plug Concrete

ITEM NO. 331.129 SHEET _____ OF _____ PAGE 11

OPERATION Penstock Access Plug Concrete

JOB Watana - Stage 3

BID QUANTITY 6.025 UNIT CY TAKE OFF QUANTITY _____

EST. BY Art Lee

DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS
OPERATION Bus Tunnels - Excavation Horizontal

Watana - Stage 3

BID QUANTITY 52

UNIT LF

TAKE OFF QUANTITY

EST. BY Art Lee

DATE _____

**EQUIPMENT
REPAIR LABOR**

**EQUIPMENT
RENT**

EQUIPMENT
SUPPLIES

**PERMANENT
MATERIALS**

SUB-CONTRACTS

**TOTAL
DIRECT COST**

PER ORIGINAL - ESCALATE /
INEFFICIENCY

52

LF

1502

9	1	6
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15/02

7/22/09

77

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11

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[illegible]

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OPERATION Excavation, Inclined 16 x 16

ITEM NO 321.152

- SHEET ____ OF ____ PAGE 13

Job Watana - Stage 3

BID QUANTITY 94

UNIT LF

TAKE OFF QUANTITY

EST BY Art Lee

- DATE

UNIT		TAKE OFF QUANTITY		EST BY Art Lee		DATE		CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
PER ORIGINAL - ESCALATOR & INEFFICIENCY				94	LE 319 ³⁵			25459	171 ⁴⁶	16	117	1225	189	10259	172	12736	20 ³⁵	21341			119 ⁷²	107219	

003570

OPERATION Bus Tunnel Slab Concrete

OPERATION

ITEM NO. 331.154

Stiefel

05

PAGE 14

JOB

Watana - Stage 3

— JOB

Art Lee

EST. BY

DATE _____

BID QUANTITY 117

UNIT CY

TAKE OFF QUANTITY

EST. BY

DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION: Transformer G. H. 1

OPERATION Transformer Gallery Excavation

ITEM NO. 331.161 SHEET OF PAGE 18

Job Watana - Stage 3

BID QUANTITY 4,785 UNIT CY TAKE OFF QUANTITY

EST. BY Art Lee

— DAT

UNIT		TAKE OFF QUANTITY	EST. BY Art Lee		DATE												
			QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST					
PER ORIGINAL - ESCALATOR & INEFFICIENCY			7785 CY.	20'3"	1140535	121'	51914	924	46127	1024	52527	1024	51104	2145	127526	924	475319

TITLE : WANTANA FEASIBILITY ESTIMATE PHASE III
CONTRACT #5225 WORK ORDER #5 VOL. I

AUTHOR: DIVER

FICHE 1 OF 2

DATE : 860109

DOCUMENT NO. 3570



DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Concrete Slab

ITEM NO. 331.164 SHEET OF PAGE 16

JOB Watana - Stage 3

BID QUANTITY 675 UNIT CY TAKE OFF QUANTITY

EST, BY Art Lee DATE _____[illegible]

OPERATION Drain Holes

ITEM NO. 331.167 SHEET OF PAGE 17

JOB Watana - Stage 3

EST. BY Art Lee DATE _____

BID QUANTITY 2.770 UNIT LF TAKE OFF QUANTITY

OPERATION		JOB		EST. BY		DATE		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
BID QUANTITY		UNIT		TAKE OFF QUANTITY		CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
2.770		LF																	
PER ORIGINAL - ESCALATE 4 INEFFICIENCY		2770 LF		303		8393 023		437 122		3379 044		1215 084		2438				12065	

[illegible]

0 0 3 5 7 0

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Care of Water

ITEM NO. 331.18 SHEET OF PAGE 19

JOB Watana - Stage 3

BID QUANTITY 1 UNIT LS TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION Instrumentation

OPERATION Instrumentation

ITEM NO. 331.19 SHEET _____ OF _____ PAGE 20
JOB Watana - Stage 2

JOB Watana - Stage 3

EST. BY Art Lee

DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Miscellaneous Buildings & Structures

ITEM NO. 331.20 SHEET OF PAGE 21

JOB Watana - Stage 3

BID QUANTITY 1 UNIT LS TAKE OFF QUANTITY

EST. BY Art Lee DATE

BID QUANTITY	UNIT	TAKE OFF QUANTITY	EST. BY	DATE
SUB CONTRACT	LS		Art Lee	

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Reservoir Clearing

ITEM NO. 332.1 SHEET OF PAGE 27

JOB Watanabe, S. : 3

BID QUANTITY 16,500 UNIT Ac TAKE OFF QUANTITY _____ EST. BY Art Lee _____ DATE _____

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Lower Diversion Tunnel Plug Concrete

ITEM NO. 332.215 SHEET OF PAGE 23

Tailrace Tunnel

JOB Watana - Stage 3

BID QUANTITY 565 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

BID QUANTITY		UNIT	TAKE OFF QUANTITY		EST. BY	DATE	CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
565		CY			Art Lee																	
PER ORIGINAL - ESCALATE			565	CY	99.77		56370	11.77	2740	14.59	8843	12.59	7283	16.74	9458	4.58	25768	1.56	881	20.20	114753	

OPERATION D/S Cofferdam Common Excavation ITEM NO. 332.231 SHEET OF PAGE 24

OPERATION D/S Cofferdam Common Excavation ITEM NO. 332.231 SHEET OF PAGE 24

JOB Wadena - Stage 3

BID QUANTITY 2.500 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION Impervious Fill

OPERATION Impervious Fill

ITEM NO. 332.232 SHEET OF PAGE 25

JOB Watana - Stage 3

FOR BY **Art Lee**

BID QUANTITY 10,200 UNIT CY TAKE OFF QUANTITY

EST. BY Art Lee DATE _____

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION Rock & Gravel Fill

ITEM NO. 332.233 SHEET OF PAGE 26

OPERATION Rock & Gravel Fill

JOB Watana - Stage 3

EST. BY Art Lee DATE _____

BID QUANTITY 15.620 UNIT CY TAKE OFF QUANTITY

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION Cut-off Wall D/S

ITEM NO. 332.235 SHEET OF PAGE 21

JOB Watana - Stage 3

EST. BY Art 100 DATE

BID QUANTITY 33.700 UNIT SF TAKE OFF QUANTITY

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Removal of Cofferdam

ITEM NO. 332.236 SHEET OF PAGE 28

108 Watana - Stage 3

BID QUANTITY 10,000 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

OPERATION Care of Water

ITEM NO. 332.237 SHEET _____ OF _____ PAGE 29

108 Watana - Stage 3

BID QUANTITY	UNIT	TAKE OFF QUANTITY	EST. BY	DATE
1	LS		Art Lee	

OPERATION Main Dam Common Excavation

OPERATION Main Dam Common Excavation ITEM NO. 332-311 SHEET OF PAGE 30

ITEM NO. 332.311 SHEET OF PAGE 30

JOB Watana - Stage 3

BID QUANTITY 674.000 UNIT CY TAKE OFF QUANTITY EST. BY Art Lee DATE

OPERATION Rock Excavation

ITEM NO. 332.312 SHEET _____ OF _____ PAGE 31

108 Watana - Stage 3

BID QUANTITY 116.800 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

BID QUANTITY		UNIT	TAKE OFF QUANTITY	EST. BY	DATE	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST
	116.800	CY		Art Lee									
PER ORIGINAL - ESCALATE	116.800	CY	438	511584	203	237VDH	223596	198	224056	251	298116		18611648

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION Drying Impervious Fill

ITEM NO. 332,315 SHEET OF PAGE 34

JOB Watana - Stage 3

EST. BY Art Lee DATE _____

BID QUANTITY 400,000 UNIT CY TAKE OFF QUANTITY

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION D/S Fills - Rock From Quarry

ITEM NO. 442.3171 SHEET OF PAGE 35

JOB Watana - Stage 3

BID QUANTITY _____ UNIT CY TAKE OFF QUANTITY _____ EST. BY Arl Lee DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION D/S Gravel

ITEM NO. 332.3172 SHEET OF PAGE 36

Watana - Stage 3

BID QUANTITY 408,700 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee

DATE _____

OPERATION		JOB		DATE		EST. BY		DATE		EQUIPMENT		EQUIPMENT		EQUIPMENT		PERMANENT		SUB-CONTRACTS		TOTAL	
BID QUANTITY		UNIT		TAKE OFF QUANTITY		EST. BY		DATE		REPAIR LABOR		RENT		SUPPLIES		MATERIALS				DIRECT COST	
408,700		CY				Art Lee															
PER ORIGINAL - ESCALATE		408700	CY	204	933748	201	77597	137	55919	158	762102	220	979140							148	3057076

U/S Filters

ITEM NO.

SHEET _____ OF _____

PAGE

37

JOB

Watana - Stage 3

BID QUANTITY

609,800

UNIT

CY

TAKE OFF QUANTITY

EST. BY

Art Lee

DATE

[illegible]

OPERATION D/S Filters

ITEM NO. 332,3182 SHEET OF PAGE 38

J08 Watana - Stage 3

BID QUANTITY 822.700 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION U/S Fills - Refs from Stockpile

ITEM NO. 332.3191 — SHEET — OF — PAGE 39

Job Watana - Stage 3

BID QUANTITY 326.100 UNIT CY TAKE OFF QUANTITY

EST. BY Art Lee DATE _____[illegible]

OPERATION U/S Rock from Quarry ITEM NO. 22.3192 SHEET OF PAGE 40

OPERATION U/S Rock from Quarry

ITEM NO. 22.3192 SHEET OF PAGE 40

JOB Watana - Stage 3

BID QUANTITY 5.189.400 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

EST. BY Art Lee DATE _____[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Baking Rockfill

ITEM NO. 332.322 SHEET OF PAGE 41

JOB Watana - Stage 3

BID QUANTITY 887,500 UNIT CY TAKE OFF QUANTITY

EST. BY Art Lee DATE _____

OPERATION		JOB		Watana - Stage 1		EST. BY		Art Lee		DATE		CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
BID QUANTITY		887,500		UNIT		CY		TAKE OFF QUANTITY				QUANTITY		UNIT													
PER ORIGINAL - ESCALATE		887,500		CY		0.13		115375		0.01		547,500		71,000		104		38520		0.06		53250				132	

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Drill & Grout - Consolidation

ITEM NO. 332.323 SHEET _____ OF _____ PAGE 42

JOB Watana - Stage 3

BID QUANTITY 113,430 UNIT LF TAKE OFF QUANTITY

EST. BY Art Lee DATE _____[illegible]

003570

OPERATION Drill & Grout - Curtain

ITEM NO. 332.328 SHEET OF PAGE 43

108 Watana - Stage 3

BID QUANTITY 82,800 UNIT LF TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

OPERATION Dam Dental Concrete

ITEM NO. 332, 325 SHEET OF PAGE 44

JOB Watana - Stage 3

BID QUANTITY 24.860 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

EST. BY		DATE		TAKE OFF QUANTITY		CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
PER ORIGINAL - ESCALATE				24460	CY	4033	3931456	2231	555497	1580	826900	1620	898453	1832	449127	4226	1045910			2755	174231

OPERATION Drain Holes

ITEM NO. 332.326 SHEET OF PAGE 45

JOB Wafana - Stage 3

BID QUANTITY 30.900 UNIT LF TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

OPERATION Dam Instrumentation

ITEM NO. 332-340

— SHEET

. OF

PAGE

46

__ JOB

Watana - Stage 3

Art Lee

DATE _____

BID QUANTITY

1

UNIT 3

TAKE OFF QUANTITY

EST. BY

QUANTIFY

UNIT

CONSTRUCTION
• ROOF & INSULATION

CONSTRUCTION SUPPLIES

**EQUIPMENT
REPAIR LABOR**

**EQUIPMENT
RENT**

EQUIPMENT SUPPLIES

PERMANENT
MATERIALS

SUB-CONTRACTS

**TOTAL
DIRECT COST**

5 || Inside

PER ORIGINAL

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Relict Channel

ITEM NO. 332.4

SHEET 47 OF 47

JOB Watana - Stage 3

EST. BY Art Lee

DATE

BID QUANTITY 1

UNIT LS

TAKE OFF QUANTITY

EST. BY

DATE

CONSTRUCTION
LABOR & INSURANCE

CONSTRUCTION
SUPPLIES

EQUIPMENT
REPAIR LABOR

EQUIPMENT
RENT

EQUIPMENT
SUPPLIES

PERMANENT
MATERIALS

SUB-CONTRACTS

TOTAL
DIRECT COST

PER ORIGINAL ESCALATE

QUANTITY

UNIT

3721827

132738

2352556

2152446

3252572

LS 1317917

DATE _____

[illegible]

OPERATION Backfill

ITEM NO. 332.5218 SHEET _____ OF _____ PAGE 4

JOB Watana - Stage 3

BID QUANTITY 60,700 UNIT CY TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
Spillway Concrete - Piers

ITEM NO. 332.5221 SHEET OF PAGE 50

OPERATION

JOB

Watana - Stage 3

EST. BY

Art Lee

DATE

BID QUANTITY

21,370

UNIT

CY

TAKE OFF QUANTITY

QUANTITY

UNIT

CONSTRUCTION
LABOR & INSURANCE

CONSTRUCTION
SUPPLIES

EQUIPMENT
REPAIR LABOR

EQUIPMENT
RENT

EQUIPMENT
SUPPLIES

PERMANENT
MATERIALS

SUB-CONTRACTS

TOTAL
DIRECT COST

PER ORIGINAL - ESCALATE

21370 CY

90

1927360

798

1702533

72

3758578

1549

351021

1001

406244

73

1575610

16

341900

72

512856

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION Deck

ITEM NO. 332.5222 SHEET OF PAGE 51

OPERATION Deck

JOB Watana - Stage 3

BID QUANTITY 350 UNIT CY TAKE OFF QUANTITY

EST. BY Art Lee DATE _____[illegible]

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION Q999

ITEM NO. 332.5225 SHEET OF PAGE 53

OPERATION Oggs

108 Watana - Stage 3

EST. BY Art Lee DATE

BID QUANTITY 242,350 UNIT CY TAKE OFF QUANTITY

EST. BY Art Lee DATE

OPERATION		JOB		EST. BY		DATE		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
BID QUANTITY	UNIT	TAKE OFF QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE	CONSTRUCTION SUPPLIES	EQUIPMENT REPAIR LABOR	EQUIPMENT RENT	EQUIPMENT SUPPLIES	PERMANENT MATERIALS	SUB-CONTRACTS	TOTAL DIRECT COST								
242,350	CY																		
PER ORIGINAL - ESCALATE		242,350	CY	5212	1263	1262	351	850649	1221	2939024	1850	9732425	7157	17344990	162	3670600	1234478576		

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Power & Outlet Intake & Approach

ITEM NO. 332.612 SHEET OF PAGE 55

Rock Excavation - Approach

JOB Watana - Stage 3

BID QUANTITY 1,750 UNIT CY TAKE OFF QUANTITY

EST BY Art Lee QAIF

[illegible]

OPERATION Rock Surface Preparation

OPERATION Rock Surface Preparation ITEM NO. 332.6121 SHEET OF PAGE 56

ITEM NO. 332.6121 SHEET OF PAGE 56

JOB Watana - Stage 3

BIO QUANTITY 55,200 UNIT SF TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

EST. BY Art Lee[illegible]

OPERATION Concrete Removal

ITEM NO. 332.6122 SHEET OF PAGE 52

JOB Watana - Stage 3

BID QUANTITY 5,650 UNIT CY

TAKE OFF QUANTITY

EST. BY Art Lee DATE _____

EST. BY		DATE		EST. BY		DATE		EST. BY		DATE		EST. BY		DATE		EST. BY		DATE	
QUANTITY	UNIT	CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST			
NEW ITEM		5650	CY	4223	200150	250	14125	157	82076	826	46669	1359	772349					8893	502556
					</														

DIVERSIFIED CONSTRUCTORS, INC.

OPERATION CONCRETE REMOVAL 332. ITEM NO 6122 SHEET OF PAGE 58

JOB WATIANA

QUANTITY 56.50 UNIT CY EST. BY

CKD BY DATE

FORM 2

ELIGURE THE FOLLOWING SPREAD
CAN REMOVE 10 CU.YOS PER
HOUR

SPREAD

1- 1200 C.E.M. COMPRESSOR
2- AIR TRACS
1- BACKHOE COMBO R/L = 152.65
1- 9.66 FEL
1- HYDRA CRANE
1- END DUMP
1- PICKUP
1- 10.15C
1- COMP. OPERATOR
2- DRILLERS
2- CHUCK TENDERS
1- BACKHOE OPERATOR
1- FEL OPERATOR
1- CRANE OPERATOR
1- TEAMSTER
4- LABDRERS
1- 4 MAN

LABOR EQUIPMENT SUPPLIES

18.96	11.07	29.29
64.30	16.44	21.70
15.00	5.43	8.57
17.14	12.90	26.63
16.71	11.19	15.82
14.57	9.17	14.19
2.57	0.21	5.71
3.80	10.00	15.00
37.47		
19.14		
17.78		
34.65		
38.34		
38.34		
57.88		
131.76		15.00
35.53		
644.94	87.57	151.69

COST PER HOUR

SUMMARY

TOTAL UNIT PRICE

DIRECT LABOR
SUPPLIES
REPAIR LABOR
EQUIPMENT
EQUIP. SUPPLIES

492.29	49.23
15.00	1.50
152.65	15.27
82.57	8.26
136.89	13.69
879.35	87.95

PROVIDER

1.00
88.95

OPERATION Intake Rock Excavation

OPERATION

ITEM NO. 332.613

SHEET _____ OF _____ PAGE 59

JOB Watana - Stage 3

BID QUANTITY 3,800

UNIT CY

TAKE OFF QUANTITY

EST. BY Art Lee

DATE _____

BID QUANTITY		UNIT	TAKE OFF QUANTITY		EST. BY	DATE	CONSTRUCTION LABOR & INSURANCE		CONSTRUCTION SUPPLIES		EQUIPMENT REPAIR LABOR		EQUIPMENT RENT		EQUIPMENT SUPPLIES		PERMANENT MATERIALS		SUB-CONTRACTS		TOTAL DIRECT COST	
PER ORIGINAL ESCALATE			3,800	CY	439		16,152	254	7,152	873	10,450	192	7,296	251	9,538					1361	51,718	

OPERATION Concrete

ITEM NO. 332.614 SHEET OF PAGE 60

JOB Watana - Stage 3

BID QUANTITY 136,560 UNIT CY TAKE OFF QUANTITY

EST. BY Art Lee DATE [illegible]

003570

OPERATION Intake Building

ITEM NO. 332.617 SHEET OF PAGE 61

JOB Watana - Stage 3

RID QUANTITY 1 UNIT LS

EST BY Art Lee

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.
OPERATION Strand VSL Anchors Including Install.

OPERATION Strand VSL Anchors Including Install.

ITEM NO. 332.618

SHEET _____ OF _____ PAGE 62

BID QUANTITY 24,080

UNIT LF

- TAKE OFF QUANTITY

— JOB

Watana - Stage 3

- EST. BY

Art Lee

DATE _____

[illegible]

OPERATION Drilling 11" Dia. Holes & Grouting

ITEM NO. 332.619 SHEET OF PAGE 62

JCB Watana - Stage 3

BID QUANTITY 18,400 UNIT LF TAKE OFF QUANTITY _____ EST. BY Art Lee DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Intake Gates, U 1 & 2

ITEM NO. 332,621 SHEET OF PAGE 64

JOB Watana - Stage 3

BID QUANTITY 9

UNIT Ea

TAKE OFF QUANTITY

EST. BY Art Lee

DATE _____

[illegible]

OPERATION Intake Gates, U 3

ITEM NO. 332.622

— SHEET — OF — PAGE 65

JOB Watana - Stage 3

EST. BY Art Lee

BID QUANTITY 2

UNIT Ea

TAKE OFF QUANTITY

EST. BY

Art Lee _____ DATE _____

[illegible]

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Intake Bulkhead

ITEM NO. 332-623 SHEET 66 OF 66

JOB Watana - Stage 3

BID QUANTITY 1

UNIT LS

TAKE OFF QUANTITY

EST. BY Art Lee

DATE

SUB CONTRACT

QUANTITY

UNIT

CONSTRUCTION
LABOR & INSURANCE

CONSTRUCTION
SUPPLIES

EQUIPMENT
REPAIR LABOR

EQUIPMENT
RENT

EQUIPMENT
SUPPLIES

PERMANENT
MATERIALS

SUB-CONTRACTS

TOTAL
DIRECT COST

1 LS

LS 418272 LS 418272

DIVERSIFIED ENGINEERS & CONSTRUCTORS, INC.

OPERATION Shutter Gates

ITEM NO. 332.624 SHEET 62 OF 62

BID QUANTITY 1

UNIT LS

TAKE OFF QUANTITY

JOB Watana - Stage 3

EST. BY Art Lee

DATE

SUB CONTRACT

QUANTITY

UNIT

CONSTRUCTION
LABOR & INSURANCE

CONSTRUCTION
SUPPLIES

EQUIPMENT
REPAIR LABOR

EQUIPMENT
RENT

EQUIPMENT
SUPPLIES

PERMANENT
MATERIALS

SUB-CONTRACTS

TOTAL
DIRECT COST

1 LS

LS 398500 LS 398500

OPERATION Ice Boom

ITEM NO. 332.626 SHEET OF PAGE 69

JOB Watana - Stage 3

EST. BY Art Lee

DATE _____

[illegible]

