

WILLBROS ENGINEERS, INC.



APPENDIX C
COST ESTIMATE BACKUP

COST ESTIMATE WORKSHEET
PACDIY PH 4-4330/14 (3-80)

SHEET 1 OF 1

CONTRACT NO.
N62742-89-C-0069

AREA RED HILL	ACTIVITY FISC PEARL HARBOR	LOCATION OAHU HI	AMENDMENT NO. 3
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PROJECT TITLE
CONSTRUCT NEW OIL TIGHT DOOR/BULKHEAD, RED HILL

Critical Infrastructure

PROJECT 1

ITEM (OR FEATURE) DESCRIPTION (Abbreviate if necessary)	QUANTITIES		MATERIAL COSTS		LABOR COST		ENGINEERING ESTIMATE	
	NO. OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
1	2	3	4	5	6	7	8	9
MOB/DEMOB	1	LS					5600	5600
SAW CUT TUNNEL GUNITE	82	LF					20.00	1640
ROCK/GUNITE EXCAVATION	441	CF					23.40	10319
HAUL/DOPOSE OF RIBBLE	16.33	CY					104	1698
FORMING FOR WALL	253	SF					35.50	8981
#10 REINFORCING STEEL	4.59	TN					1196	5489
CONCRETE/CONCRETE PUMP	23.16	CY					215	4979
STEEL DOOR & FRAME	1	LS					3360	3360
PAINTING	147	SF					3.50	514
NEOPRENE DOOR SEAL	1	LS					465	465
SUMP PUMP/PIPING TO SUMP	1	LS					3145	3145
SEALS AT EXISTING E. CABLES	1	LS					560	560
DOOR CLOSING MECHANISM AND CONTROLS	1	LS					15000	15000
TRACK MODIFICATIONS OR ALTERNATIVE SEALING MECHANISM	1	LS					8500	8500
PROVIDE FUEL BY-PASS FOR DRAINING TRAPPED FUEL - PIPING, VALVES, TIE-IN	1	LS						12,500
ALARM & CABLE	1	LS						2500
DESIGN OF NEW CLOSURE SYSTEM AND TESTING	1	LS						15,000
							TOTAL	100,270

PREPARED BY (Name) C. TRAN SUE / J. RASMUSSEN	APPROVED BY ALLEN SMITH	TITLE OR ORGANIZATION WILLBROS BUTLER	DATE 6/19/98
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JOB NO. 50253 PREPARED BY: C.T. DATE 3/3/94
CLIENT N244 CHECKED BY: _____ SHEET 1 OF _____
SUBJECT Tunnel Estimate - New Door 2E **Critical Infrastructure**
Lower Tunnel

Critical Infrastructure

COST ESTIMATE WORKSHEET
 PACDIV PH 4-4330/14 (3-80)

SHEET 1 OF 1

CONTRACT NO.
 N62742-89-C-0069

AREA RED HILL	ACTIVITY FISC PEARL HARBOR	LOCATION OAHU HI	AMENDMENT NO. 3
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PROJECT TITLE

REHAB OIL TIGHT Critical Infrastructure N Critical Infrastructure AND
Critical Infrastructure TO CONTROL PIPING LEAKS ONLY. REPAIR

ITEM (OR FEATURE) DESCRIPTION (Abbreviate if necessary)	QUANTITIES		MATERIAL COSTS		LABOR COST		ENGINEERING ESTIMATE	
	NO. OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
1	2	3	4	5	6	7	8	9
REVISE ELECT. RELEASE MECHANISM TO FAIL SAFE TYPE	2	EA					1400	2800
REPLACE SEALS ON DOOR	2	EA					485	970
Provide New Power Source FOR Critical Infrastructure From PWC P.S.	150	LF					7.00	1050
Provide New Power Source FOR Critical Infrastructure	800	LF					7.00	5600
REPLACE inoperative Flapper Valve on Under drain w/ SPRING LOADED CHECK OR BUTTERFLY VALVE AND TRIP MECHANISM	2	EA					2352	4704
STRAIGHTEN Critical Infrastructure	1	LS						
REPAINT Critical Infrastructure	2	EA					514	1028
TEST	2	EA					500	1000
						TOTAL		17152

PREPARED BY (Name) RASMUSSEN	APPROVED BY ALLEN SMITH	TITLE OR ORGANIZATION WILLBROS BUTLER	DATE 6/19/98
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PACDIV PH 4-4330/14 (3-80)

CONTRACT NO.
N62742-89-C-0069

AREA	ACTIVITY	LOCATION	AMENDMENT NO.
RED HILL	FISC PEARL HARBOR	CAHU, H.I.	3
PROJECT TITLE			
CONSTRUCT NEW OIL TIGHT DOOR/BUICKHEAD-RED HILL			Critical Infrastructure

Project 3

ITEM (OR FEATURE) DESCRIPTION (Abbreviate if necessary)	QUANTITIES		MATERIAL COSTS		LABOR COST		ENGINEERING ESTIMATE	
	NO. OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
1	2	3	4	5	6	7	8	9
MOB / DEMOB	1	LS					4000	4000
SAW CUT TUNNEL GUNITE	82	LF					20.00	1640
ROCK EXCAVATION	276	CF					23.40	6458
Haul / DISPOSE OF RUBBLE	10.2	CY					104	1061
FORMING FOR WALL	253	SF					35.50	8981
REINFORCING STEEL	3,868	TN					1196	3430
CONCRETE / CONCRETE PUMP	15.19	CY					175	2658
STEEL DOOR	1	LS					3024	3024
PAINT	1	LS					514	514
SEALS FOR DOOR	1	LS					485	485
SEALS FOR PENETRATIONS	1	LS					500	500
TRACK WORK	0	0					0	0
DOOR CLOSING MECHANISM AND CONTROLS	1	LS					6000	6000
PROVIDE DRAIN FOR TRAPPED FUEL	1	LS					3000	3000
TEST DOOR, MECH. & DRAIN	1	LS					500	500
NOTE: CALCULATIONS & ESTIMATE BASED ON HEAD OF 74' OR								
	P = 74 x 51.2 x 1.1 =				38.94	OK 29 PSI		
					:			
						TOTAL		42,251

PREPARED BY (Name)	APPROVED BY	TITLE OR ORGANIZATION	DATE
C. TRANSUE / J. RASMUSSEN	ALLEN SMITH	Will Bros Butler	6/19/98

CONTRACT NO.
N 62742-89-C-0069

AREA	ACTIVITY	LOCATION	AMENDMENT NO.
RED HILL	FISC PEARL HARBOR	OAHU, HI	3

PROJECT TITLE
CONSTRUCT NEW OIL TIGHT DOOR/BULKHEAD AND DIVERSION WALL

Critical Infrastructure

PROJECT 4

ITEM (OR FEATURE) DESCRIPTION (Abbreviate if necessary)	QUANTITIES		MATERIAL COSTS		LABOR COST		ENGINEERING ESTIMATE	
	NO. OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
1	2	3	4	5	6	7	8	9
MCP/DEMOB	1	LS					4000	4000
SAWCUT TUNNEL GUNITE	83	LF					20.00	1640
ROCK EXCAVATION	276	CF					23.40	6458
HAUL/DISPOSE OF RIBBLE	10.2	CY					104	1061
FORMING FOR WALL	253	SF					35.50	8981
REINFORCING STEEL	2.868	TN					1196	3430
CONCRETE/CONCRETE PUMP	15.19	CY					175	2658
STEEL DOOR	1	LS					3024	3024
PAINT	1	LS					514	514
SEALS FOR DOOR	1	LS					485	485
SEALS FOR PENETRATIONS	0	0					0	0
TRACE WORK	0	0					0	0
DOOR CLOSING MECHANISM AND CATCHES	1	LS					6100	6000
DIVERSIONARY WALL ADITS	1	LS					2800	2800
Critical Infrastructure								
PROVIDE DRAIN FOR TRAPPED WATER	1	LS					3000	3000
TEST DOOR, MECH, & DRAIN	1	LS					500	500
						TOTAL		44551

PREPARED BY (Name)

RASMUSSEN / CT

APPROVED BY

ALLEN SMITH

TITLE OR ORGANIZATION

WILLBROS BUTLER

DATE

6/19/98

PACDIY PH 4-4330/14 (3-80)

CONTRACT NO.
N62742-89-C-0069

AREA	ACTIVITY	LOCATION	AMENDMENT NO.
RED HILL	FISC PEARL HARBOR	ON H.W. H.I.	3

PROJECT TITLE
CONSTRUCT DIVERSIONARY WALL AT PWC PUMP STATION

PROJECT 5

[illegible]

PACRIV PM 4-4230/14 (3-80)

SHEET 1 OF 1

CONTRACT NO.

N62742-89-C-0069

AMENDMENT NO.

AREA

ACTIVITY**LOCATION**

RED HILL

ACTIVITY	LOCATION
FISC PEARL HARBOR	CANU HI

PROJECT TITLE

TITLE
INSPECT/SEAL PENETRATIONS/P.I.PES IN LOWER TUNNEL VALVE GALLERIES

PROJECT 6

[illegible]

CONTRACT NO.
 N62742-89-C-0069

AREA: Red Hill Complex ACTIVITY: Fire Protection LOCATION: Pearl Harbor, HI
 PROJECT TITLE: Fire / Lifesafety Risk Assessment / Analysis
 Red Hill Fuel Facility

ITEM (OR FEATURE) DESCRIPTION (Abbreviate in summary)	QUANTITIES		MATERIAL COSTS		LABOR COST		ENGINEERING ESTIMATE	
	NO. OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
1. AFFF Suppression System (Lower Access Tunnel)	1		-	\$400,000	-	\$250,000	-	\$650,000
2. Emergency Voice/Alarm Communication System	1		-	\$150,000	-	\$100,000	-	\$250,000
3. Ansul 150 lb. Purple K Wheeled Fire Extinguishers	10		\$2,200	\$22,000	-	-	\$2,200	\$22,000
4. Install Man-Door Opening Lower Access Tunnel	1		-	*	-	\$15,000	-	\$15,000
5. Self-Contained Breathing Apparatus	12		\$500	\$6,000	-	-	-	\$6,000
6. Fire Hose Stations	36		\$300	\$10,800	-	-	\$300	\$10,800
Fire Hose Packs	6		\$150	\$900	-	-	\$150	\$900

PREPARED BY (Name): John Echtenacht APPROVED BY: [Signature] TITLE OR ORGANIZATION: Firesafety Consultants DATE: 6/5/98

* Install existing submarine hatch bulkhead door

PACDIY PH 4-4330/14 (3-80)

SHEET 1 OF 1

CONTRACT NO.

N 62 742 - 89-5 - 3042

AMENDMENT NO.

210
211
212

AREA

Red Hill

ACTIVITY

ACTIVITY FISC
PEARL HARBOR.

LOCATION

ОАНЦ, ННХ АН

PROJECT TITLE

FIRE PROTECTION OF PIPE SUPPORTS

[illegible]