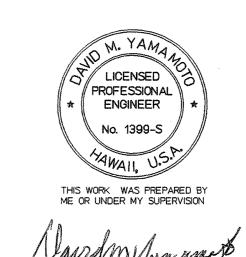
FED. ROAD S	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	SHEETS
HAWAII	HAW.	BR-H1-1(226)	1999	2	38

TEM NO.				4
206 0150 STRUCTURE EXCAVATION ® PIER 21 260 CY 206 0200 STRUCTURE BACKFILL ® PIER 21 1,500 CY 206 0250 STRUCTURE BACKFILL ® PIER 21 190 CY 503 1090 CONCRETE CREEP BLOCKS 16 CY 503 1091 CONCRETE IN FOOTING RETROFITS OTHER THAN ® PIER 21 518 CY 503 1092 CONCRETE IN FOOTING RETROFITS 0 THE THAN ® PIER 21 102 CY 503 1093 CONCRETE IN FOOTING RETROFITS 65 CY 505 1093 CONCRETE IN FOOTING RETROFITS 65 CY 505 0010 PILE DYNAMIC LOAD TESTS 12 EA. 506 0500 16 OD STEEL PIPE PILES, FURNISHED 3,500 LF 505 0510 24 OD STEEL PIPE PILES, FURNISHED 1,320 LF 505 0510 24 OD STEEL PIPE PILES, DRIVEN AND FILLED W/CONCRETE. ® PIER 21 6,860 LF 505 5000 16 OD STEEL PIPE PILES, DRIVEN AND FILLED W/CONCRETE. ® PIER 21 570 LF 505 5000 16 OD STEEL PIPE PILES, DRIVEN AND FILLED W/CONCRETE. © PIER 21 570 LF 505 5000 24 OD STEEL PIPE PILES, DRIVEN AND FILLED W/CONCRETE. © PIER 21 570 LF 505 5000 THE THAN ® PIER 21 570 LF 505 5000 PRE-DRILLING, 16 OD STEEL PIPE PILES 720 LF 505 6000 PRE-DRILLING, 16 OD STEEL PIPE PILES 720 LF 505 6000 PRE-DRILLING, 16 OD STEEL PIPE PILES 375 LF 505 6100 PRE-DRILLING, 16 OD STEEL PIPE PILES 375 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 375 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 16 OD STEEL PIPE PILES 300 LF 505 7000 OVER-REAMING, 30 OD STEEL PIPE PILES 300 LF 505 700 505 700 PIPE STEEL PIP		ITEM NO.	ITEM	APPROX. QUANTITY
206.0200 STRUCTURE BACKFILL OTHER THAN @ PIER 21 1,580 CY 206.0250 STRUCTURE BACKFILL @ PIER 21 190 CY 503.1090 CONCRETE CREEP BLOCKS 16 CY 503.1091 CONCRETE IN FOOTING RETROFITS 518 CY 503.1092 CONCRETE IN FOOTING RETROFITS 518 CY 503.1092 CONCRETE IN FOOTING RETROFITS @ PIER 21 102 CY 503.1093 CONCRETE JACKET FOR OUTRIGGER 505.0010 PILE DYNAMIC LOAD TESTS 12 EA. 505.0010 PILE DYNAMIC LOAD TESTS 12 EA. 505.0010 PILE DYNAMIC LOAD TESTS 12 EA. 505.0010 46° OD STEEL PIPE PILES, FURNISHED 1,320 LF 505.0010 46° OD STEEL PIPE PILES, FURNISHED 1,320 LF 505.5001 46° OD STEEL PIPE PILES, DRIVEN AND FILLED 6,860 LF 505.5001 46° OD STEEL PIPE PILES, DRIVEN AND FILLED 7570 LF 505.5001 76° OD STEEL PIPE PILES, DRIVEN AND FILLED 7570 LF 505.5001 76° OD STEEL PIPE PILES, DRIVEN AND FILLED 7570 LF 505.5001 76° OD STEEL PIPE PILES, DRIVEN AND FILLED 770 LF 505.5001 770 DSTEEL PIPE PILES, DRIVEN AND FILLED 770 LF 505.5001 770 DSTEEL PIPE PILES, DRIVEN AND FILLED 770 LF 505.6001 770 DSTEEL PIPE PILES, DRIVEN AND FILLED 770 LF 505.6001 770 DSTEEL PIPE PILES 770 LF 505.6001 770 D		206.0100	STRUCTURE EXCAVATION OTHER THAN @ PIER 21	2,070 CY
206 0250 STRUCTURE BACKFILL 0 PIER 21 190 CY		206.0150	STRUCTURE EXCAVATION @ PIER 21	260 CY
503.1090 CONCRETE CREEP BLOCKS 16 CY		206.0200	STRUCTURE BACKFILL OTHER THAN @ PIER 21	1,580 CY
CONCRETE IN FOOTING RETROFITS 518 CY		206.0250	STRUCTURE BACKFILL @ PIER 21	190 CY
OTHER THAN	***************************************	503.1090	CONCRETE CREEP BLOCKS	16 CY
503.1092 CONCRETE IN FOOTING RETROFITS 6 PIER 21 102 CY		503.1091	CONCRETE IN FOOTING RETROFITS	
503.1093			OTHER THAN @ PIER 21	518 CY
SENT CAP RETROFITS		503.1092	CONCRETE IN FOOTING RETROFITS @ PIER 21	102 CY
12 EA.		503.1093		05.04
16	.	505 0040		
1.320 LF 1.320 LF				
16				-
W/ CONCRETE. OTHER THAN @ PIER 21 6,860 LF		·····		1,320 LF
16' OD STEEL PIPE PILES, DRIVEN AND FILLED W/ CONCRETE. 0 PIER 21 570 LF		505.5000	• • • • • • • • • • • • • • • • • • • •	6 860 IE
W/ CONCRETE. @ PIER 21 570 LF	-	505 5001		0,000 LI
1,150 LF		303.3001		570 LF
DRIVEN AND FILLED W/ CONCRETE 1.150 LF		505 5100		0,0 21
OTHER THAN @ PIER 21 720 LF			·	1,150 LF
Description		505.6000	PRE-DRILLING, 16" OD STEEL PIPE PILES	
PIER 21			OTHER THAN @ PIER 21	720 LF
505.6100		505.6001		400 15
505.7000 OVER-REAMING, 16' OD STEEL PIPE PILES 0THER THAN @ PIER 21 300 LF 505.7001 OVER-REAMING, 16' OD STEEL PIPE PILES @ PIER 21 120 LF 505.7100 OVER-REAMING, 24' OD STEEL PIPE PILES 150 LF 602.0090 REINFORCING IN BRIDGE STRUCTURE, INCLUDING FOOTING RETROFITS, CREEP BLOCKS, OUTRIGGERS AND CURTAIN WALLS 92,000 LB 653.0100 ACCESS OPENINGS, SOFFIT 292 EA. 654.0100 DIAPHRAGM BOLSTERS, TYPE 1 2 654.0200 DIAPHRAGM BOLSTERS, TYPE 2 97 654.0300 DIAPHRAGM BOLSTERS, TYPE 3 3 654.0400 DIAPHRAGM BOLSTERS, TYPE 4 7 655.0100 DIAPHRAGM BOLSTERS, TYPE 5 20 655.0100 DRILLING HOLES AND INSTALLING DOWEL REINFORCING BARS IN FOOTING RETROFITS 4,200 EA. 656.0101 CORE CONCRETE (6') @ DIAPHRAGM 40 EA. 656.0100 CORE CONCRETE (6') @ DIAPHRAGM 40 EA. 656.0200 CORE CONCRETE (6') @ DIAPHRAGM 40 EA. 656.0200 CORE CONCRETE (6') @ DIAPHRAGM 55 C.Y. 658.0100 PIPE SEAT EXTENDERS		505 0400		
0THER THAN @ PIER 21 300 LF 505.7001 OVER-REAMING, 16' OD STEEL PIPE PILES @ PIER 21 120 LF 505.7100 OVER-REAMING, 24' OD STEEL PIPE PILES 150 LF 602.0090 REINFORCING IN BRIDGE STRUCTURE, INCLUDING FOOTING RETROFITS, CREEP BLOCKS, OUTRIGGERS AND CURTAIN WALLS 92,000 LB 653.0100 ACCESS OPENINGS, SOFFIT 292 EA. 654.0100 DIAPHRAGM BOLSTERS, TYPE 1 2 654.0200 DIAPHRAGM BOLSTERS, TYPE 2 97 654.0300 DIAPHRAGM BOLSTERS, TYPE 3 3 654.0500 DIAPHRAGM BOLSTERS, TYPE 4 7 655.0100 DRILLING HOLES AND INSTALLING DOWEL 20 655.0101 DRILLING HOLES AND INSTALLING DOWEL 4.200 EA. 655.0101 DRILLING HOLES AND INSTALLING DOWEL 4.200 EA. 656.0100 CORE CONCRETE (6') @ DIAPHRAGM 40 EA. 656.0100 CORE CONCRETE (6') @ DIAPHRAGM 40 EA. 656.0200 CORE CONCRETE (6') @ DIAPHRAGM 40 EA. 656.0200 CORE CONCRETE (6') @ DIAPHRAGM 55 C.Y. 658.0100 PIPE SEAT EXTENDERS 91 EA. <td>- </td> <td></td> <td></td> <td>3/5 LF</td>	-			3/5 LF
The second color of the		505 /000		200 15
© PIER 21 120 LF 505.7100 OVER-REAMING, 24' OD STEEL PIPE PILES 150 LF 602.0090 REINFORCING IN BRIDGE STRUCTURE, INCLUDING FOOTING RETROFITS, CREEP BLOCKS, OUTRIGGERS AND CURTAIN WALLS 92,000 LB 653.0100 ACCESS OPENINGS, SOFFIT 292 EA. 654.0100 DIAPHRAGM BOLSTERS, TYPE 1 2 654.0200 DIAPHRAGM BOLSTERS, TYPE 2 97 654.0300 DIAPHRAGM BOLSTERS, TYPE 3 3 654.0400 DIAPHRAGM BOLSTERS, TYPE 4 7 654.0500 DIAPHRAGM BOLSTERS, TYPE 5 20 655.0100 DRILLING HOLES AND INSTALLING DOWEL REINFORCING BARS IN FOOTING RETROFITS 4.200 EA. 655.0101 DRILLING HOLES AND INSTALLING DOWEL REINFORCING BARS IN OUTRIGGER RETROFITS 3.500 EA. 656.0100 CORE CONCRETE (6*) © DIAPHRAGM 40 EA. 656.0100 CORE CONCRETE (6*) © DIAPHRAGM 40 EA. 656.0200 CORE CONCRETE (9*) 111 EA. 657.0100 ABUTMENT CONCRETE BLOCKING 55 C.Y. 658.0100 PIPE SEAT EXTENDERS 91 EA. 659.0100 TYPE 1 RESTRAINERS 20 EA.	-	505 7004		300 LF
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REINFORCING IN BRIDGE STRUCTURE, INCLUDING FOOTING RETROFITS, CREEP BLOCKS, OUTRIGGERS AND CURTAIN WALLS 92,000 LB	-	505 7400		
INCLUDING FOOTING RETROFITS, CREEP BLOCKS, OUTRIGGERS AND CURTAIN WALLS 92,000 LB				150 LF
0UTRIGGERS AND CURTAIN WALLS 92,000 LB 653.0100 ACCESS OPENINGS, SOFFIT 292 EA. 654.0100 DIAPHRAGM BOLSTERS, TYPE 1 2 654.0200 DIAPHRAGM BOLSTERS, TYPE 2 97 654.0300 DIAPHRAGM BOLSTERS, TYPE 3 3 654.0400 DIAPHRAGM BOLSTERS, TYPE 4 7 654.0500 DIAPHRAGM BOLSTERS, TYPE 5 20 655.0100 DRILLING HOLES AND INSTALLING DOWEL REINFORCING BARS IN FOOTING RETROFITS 4,200 EA. 655.0101 DRILLING HOLES AND INSTALLING DOWEL REINFORCING BARS IN OUTRIGGER RETROFITS 3,500 EA. 656.0100 CORE CONCRETE (6°) DIAPHRAGM 40 EA. 656.0110 CORE CONCRETE (6°) PIER CAP 20 EA. 656.0200 CORE CONCRETE (9°) 111 EA. 657.0100 ABUTMENT CONCRETE BLOCKING 55 C.Y. 658.0100 PIPE SEAT EXTENDERS 91 EA. 659.0100 TYPE 1 RESTRAINERS 20 EA.		602.0090		
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656 0100 CORE CONCRETE (6") © DIAPHRAGM 40 EA. 656 0110 CORE CONCRETE (6") © PIER CAP 20 EA. 656 0200 CORE CONCRETE (9") 111 EA. 657 0100 ABUTMENT CONCRETE BLOCKING 55 C.Y. 658 0100 PIPE SEAT EXTENDERS 91 EA. 659 0100 TYPE 1 RESTRAINERS 20 EA.	-	655.0101	DRILLING HOLES AND INSTALLING DOWEL	
656.0110 CORE CONCRETE (6") @ PIER CAP 20 EA. 656.0200 CORE CONCRETE (9") 111 EA. 657.0100 ABUTMENT CONCRETE BLOCKING 55 C.Y. 658.0100 PIPE SEAT EXTENDERS 91 EA. 659.0100 TYPE 1 RESTRAINERS 20 EA.			REINFORCING BARS IN OUTRIGGER RETROFITS	3,500 EA.
656 0200 CORE CONCRETE (9") 111 EA. 657 0100 ABUTMENT CONCRETE BLOCKING 55 C.Y. 658 0100 PIPE SEAT EXTENDERS 91 EA. 659 0100 TYPE 1 RESTRAINERS 20 EA.		656 0100	CORE CONCRETE (6") @ DIAPHRAGM	40 EA.
657.0100 ABUTMENT CONCRETE BLOCKING 55 C.Y. 658.0100 PIPE SEAT EXTENDERS 91 EA. 659.0100 TYPE 1 RESTRAINERS 20 EA.		656 0110	CORE CONCRETE (6") @ PIER CAP	20 EA.
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659.0100 TYPE 1 RESTRAINERS 20 EA.		657.0100	ABUTMENT CONCRETE BLOCKING	55 C.Y.
		658.0100	PIPE SEAT EXTENDERS	91 EA.
659.0200 TYPE 2 RESTRAINERS 20 EA.		659.0100	TYPE 1 RESTRAINERS	20 EA.
		659.0200	TYPE 2 RESTRAINERS	20 EA.

ESTIMATED QUANTITIES LIST OF ABBREVIATIONS AND SYMBOLS

В	Baseline	f'c	Specified Compressive Strength of Concrete	R	Radius
Ĺ	Centerline	Ft.	Feet	RCP	Reinforced Concrete Pipe
§	Stationline	ftg(s)	footing(s)	Ref.	Reference
Ø	Diameter	fy, Fy	Specified Minimum Yield Stress of Steel	Reinf	Reinforcing
(E)	Existing	.,,.	- F · · · · · · · · · · · · · · · ·	Ret.	Retaining
(N)	New	gr.	Grade	R/W	Right Of Way
		J			J ,
Abt.	About	Horiz	Horizontal	Sht	Sheet
Abut.	Abutment			SF	Square Feet
A.C.	Asphaltic Concrete	I.B.	In Bound	Sim.	Similar
Approx.	Approximate	I.D.	Inside Diameter	SDMH	Storm Drain Manhole
Ave.	Avenue	lnv	Invert	SP	Space
AZ.	Azimuth			SL	Slope
		Jt.	Joint	Specs	Specifications
Beg.	Beginning			Sta.	Station
Blvd.	Boulevard	lbs	Pounds	Stiff.	Stiffener
Bot, Bott	Bottom	LF	Linear Feet	Stl.	Steel
Brg	Bearing	Lg	Long	Str.	Strong
		LS	Lump Sum	struct.	Structural
CB	Catch Basin			Symm.	Symmetrical
CL	Class	M.L.	Match Line	Sy	Square Yard
clr	Clear	Max.	Maximum		
col.	Column	Min	Minimum	T & B	Top and Bottom
C.P.	Complete Penetration	M.P.H.	Miles Per Hour	Temp	Temperature
CONC	Concrete			Thk	Thick
cont.	Continuous	0.B.	Out Bound	TMK	Tax Map Key
Су	Cubic yard	0.C.	On Center	TOT	Total
·		0.D.	Outside Diameter	Тур.	Typical
Det.	Detail	O.H.	Opposite Hand		
D, Dia	Diameter			U.N.O.	Unless Noted Otherwise
		Pav't, Pavm't	Pavement		
Ea	Each	pen	Penetration	Vert.	Vertical
EF	Each Face	P.C.	Point Of Curve		
El, Elev	Elevation	P.C.C.	Point Of Compound Curve	w/	With
Emb	Embedment	PL	Plate		
EQ	Equal	psi	Pounds Per Square Inch		
Ехр.	Expansion	PT	Point of Tangent		
EW	Each Way	PVC	Polyvinyl Chloride		
EXC.	Excavation				
Exist.	Existng				



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

LIST OF ABBREVIATIONS AND SYMBOLS ESTIMATED QUANTITIES

INTERSTATE ROUTE H-1, SEISMIC RETROFIT

KAPIOLANI INTERCHANGE

FEDERAL AID PROJECT NO. BR-H1-1(226)

DATE: DECEMBER 1998 SHEET No. 1 OF 1 SHEETS