Department of Army Permit Application

PROPOSED KAWELA BRIDGE REPLACEMENT PROJECT (Federal Aid Project No. BR-0450(8)

Prepared for:

State of Hawaii,
Department of Transportation

January 2010

MUNEKIYO HIRAGA, INC.

Department of Army Permit Application
for
Proposed Kawela Bridge Replacement Project
(Federal Aid Project No. BR-0450(8)

INDEX

1. DEPARTMENT OF ARMY PERMIT APPLICATION FORM

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT *(33 CFR 325)*	OMB APPROVAL NO. 0710-0003 EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This Information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME:	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
First - Glenn Middle - M. Last – Yasui Company – State of Hawaii, Department of Transportation E-mail Address – glenn.yasui@hawaii.gov	First - Mitsuru Middle - Last – Hirano Company – Munekiyo & Hiraga, Inc. E-mail Address – planning@mhplanning.com
6. APPLICANT'S ADDRESS. Address - 869 Punchbowl Street, Room 513 City – Honolulu State – Hawaii Zip – 96813 Country – USA	9. AGENT'S ADDRESS Address - 305 High Street, Suite 104 City – Wailuku State – Hawaii Zip – 96793 Country – USA
7. APPLICANT'S PHONE NOs. W/AREA CODE a. Residence b. Business c. Fax N/A (808)587-2220 (808)692-2340	10. AGENT'S PHONE NOs. W/AREA CODE a. Residence b. Business c. Fax N/A (808)244-2015 (808)244-8729

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Munekiyo & Hiraga, Inc. to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE — DATE: 1-4-10

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

Kawela Bridge Replacement (Federal Aid Project No. BR-0450(8))

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Kawela Stream	Address Kamehameha V Highway, Milepost 5.110
15. LOCATION OF PROJECT Latitude: °N 21 degrees 03' 53.58"N Longitude: °W 156 degrees 56' 55.47"W	City - Kawela State – Hawaii Zip - 96748

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID (2)5-4-001:23 and 27 Municipality
Section – Kaluakoi Township – Range –

17. DIRECTIONS TO THE SITE

Kamehameha V Highway, Milepost 5.110, East of Kaunakakai, Molokai, Hawaii

18. Nature of Activity (Description of project, include all features) Replacement of Kawela Bridge, concrete slab to line stream channel, micropiles to support concrete slab, rip-rap protection to prevent underscouring of concrete slab, metal bollards to prevent large boulders from damaging concrete lining, concrete abutments to support bridge deck, CRM wingwalls to retain bank, grouted rubble paving to stabilize bank, and concrete access ramp for maintenance. A temporary detour route to maintain traffic flow during construction and temporary six (6) 42-inch concrete culverts under detour route to maintain stream flow during storms. The temporary detour route will be dismantled upon completion of the new bridge and the site of the detour route will be restored to its original condition to the extent practicable. The Mean Higher High Water (MHHW) elevation is 1.3 ft. MSL.
See Attachment "A" Construction Plans (60 percent).

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The new Kawela Bridge will replace an existing bridge which was constructed in 1940 and is structurally deficient and hydraulically inadequate.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge The discharge involves construction of a temporary detour route and placement of six (6) 42-inch concrete culverts to allow stream flow; placing fill over the culverts to bring detour route to highway grade; waterline encased in a concrete jacket under the stream; concrete abutments to support bridge deck; lining the Kawela Stream bed with concrete under the bridge to facilitate maintenance and clearing the stream channel of debris after storms; micropiles filled with grout to support concrete liner; CRM wingwall and placement of grouted rip-rap to stabilize the stream banks and rip-rap apron to protect underscouring of concrete lining; installation of metal bollards upstream of the bridge to restrict large boulders from damaging the concrete lining; and concrete ramp to access streambed.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
See Attachment "B"		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 0.416 acre
Or
Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See Attachment "C"

24. Is Any Portion of the Work Already Complete? Yes ☐ No ☒ IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address – **See Attachment "D"**

City – State – Zip –

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
See Attachment "E"					

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
[signature]	1-4-10		

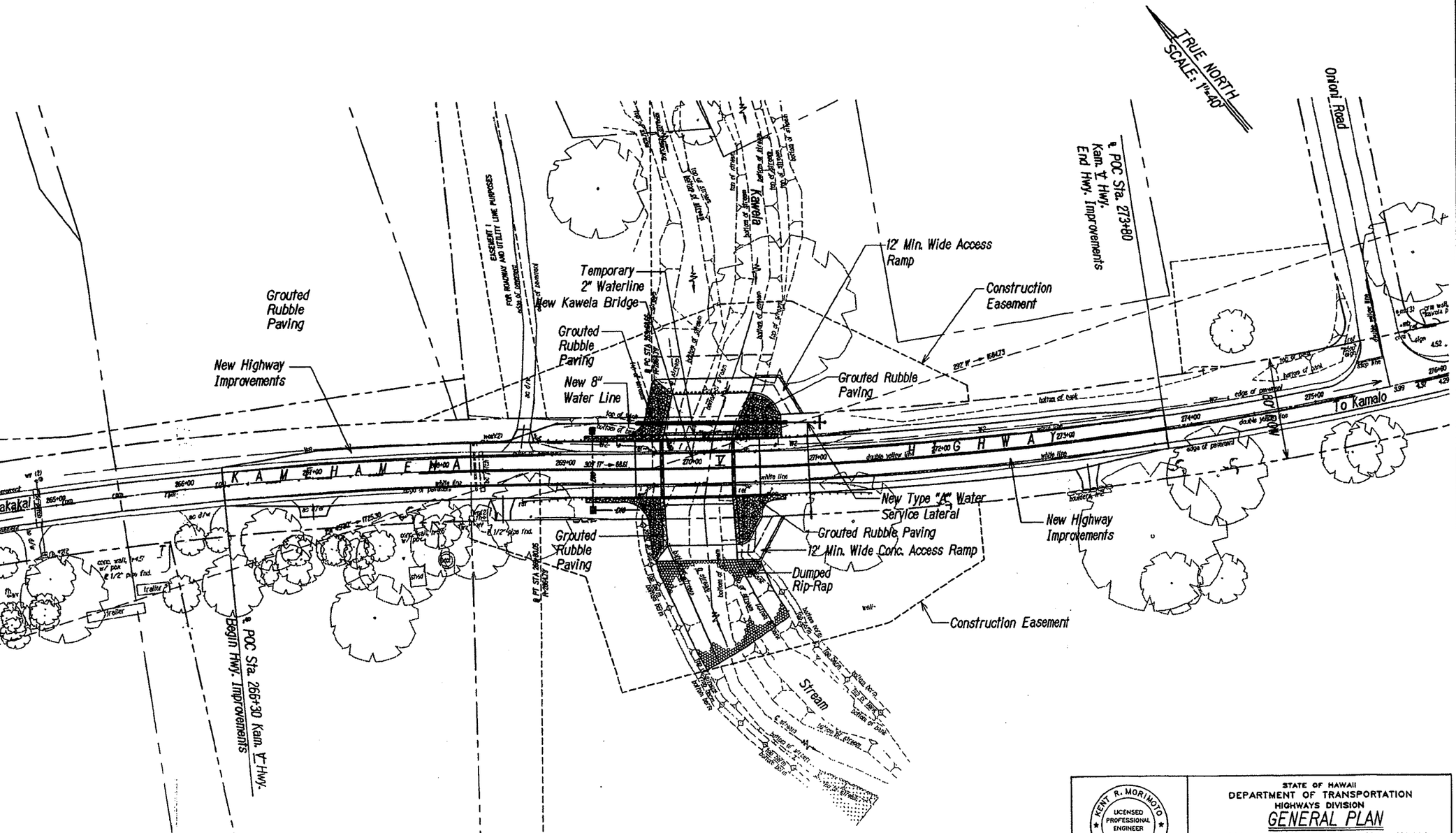
The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

ATTACHMENT A.

Construction Plans

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-0450-8	2008	12	61



GENERAL PLAN-KAM. V HWY.

SCALE: 1" = 40'

ORIGINAL PLAN

SURVEY PLOTTED BY _____ DATE _____
DRAWN BY _____
TRACED BY _____
DESIGNED BY _____
QUANTITIES BY _____
NOTE BOOK _____ CHECKED BY _____
PG. _____

KENT R. MORIMOTO
LICENSED PROFESSIONAL ENGINEER
No. 6974-C
HAWAII, U.S.A.
DP 4/30/10

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

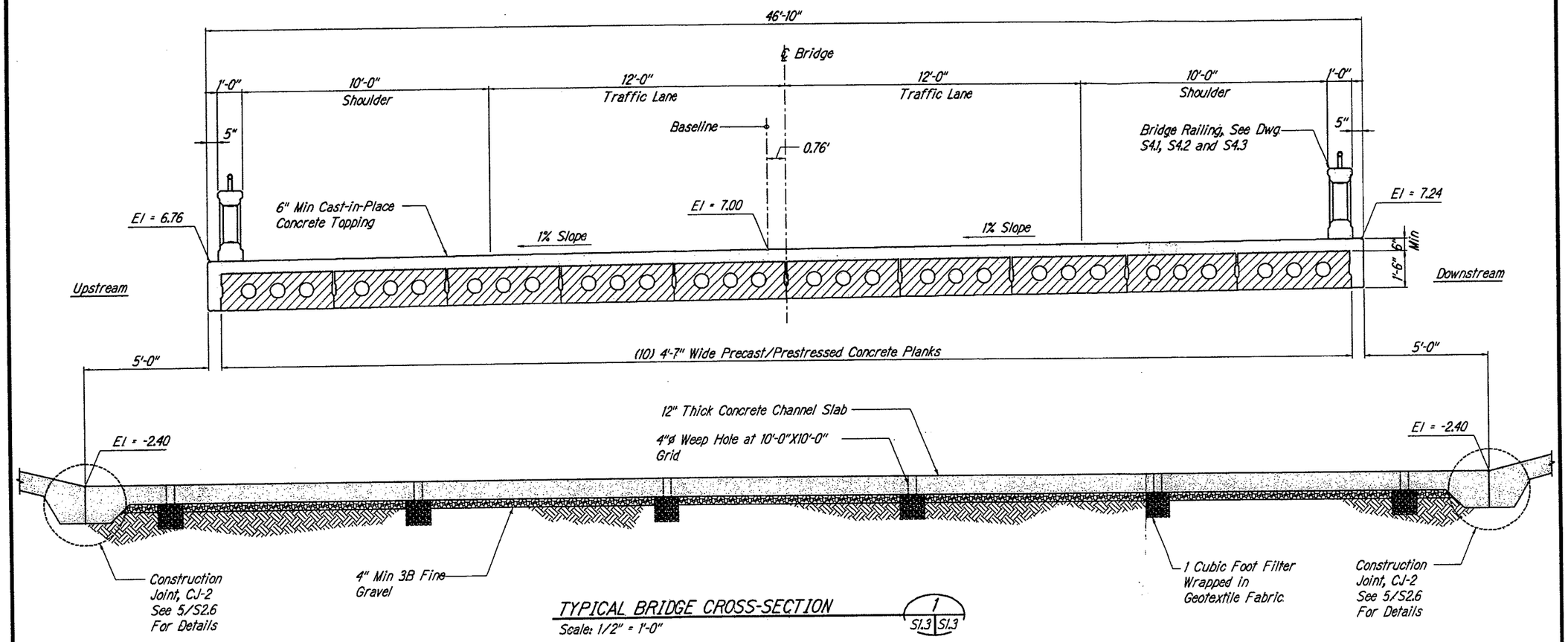
GENERAL PLAN
KAMEHAMEHA V HIGHWAY
Kamehameha V Highway
Kawela Bridge Replacement
Federal Aid Project No. BR-0450(8)

Scale: As Shown Date: Oct. 2008

SHEET No. C.11 OF 61 SHEETS

12

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-0450(8)	2008	57	81



TYPICAL BRIDGE CROSS-SECTION

Scale: 1/2" = 1'-0"

1
S1.3 | S1.3

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

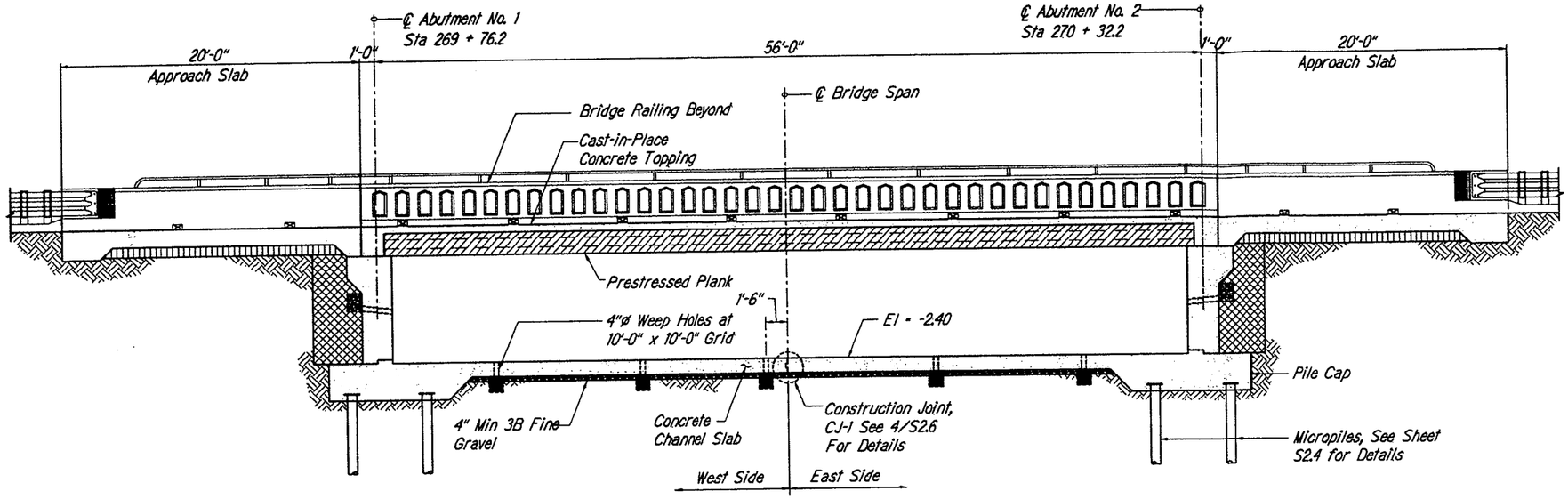
TYPICAL BRIDGE CROSS SECTION

Kamehameha V Highway
Kawela Bridge Replacement
Federal Aid Project No. BR-0450(8)

Scale: AS NOTED Date: Oct 2008

SHEET No. S1.3 OF 81 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-0450(8)	2008	56	81



LONGITUDINAL SECTION ALONG BASE LINE (1 - S1.2)

Scale: 1/4" = 1'-0"

Notes:

The following construction sequence shall be followed to avoid imposing lateral loads on the micropiles during construction.

1. Construct pile cap, channel slab, abutment wall and wing wall on the west side. (Do not place backfill behind abutment wall until stage 3)

2. Construct pile cap, channel slab, abutment wall and wing wall on the east side.

3. Place backfill up to the midheight of the wall at abutment no. 1. Do not begin backfilling until the concrete for abutment no. 2 has reached 4,000 psi compressive strength, or 7 days, whichever is later.

4. Place backfill completely at abutment no. 2.

5. Complete backfill at abutment no. 1.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE LONGITUDINAL SECTION

Kamehameha V Highway
Kawela Bridge Replacement
Federal Aid Project No. BR-0450(8)

Scale: AS NOTED Date: Oct 2008

SHEET No. S1.2 OF 81 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-0450-	82008	36	81

Sta. 0+00 WL "A"
=℄B Sta. 268+38.7±Kam. V Hwy.
O/S 22.20' Lt.
Remove existing 8" Plug and Connect to existing 8" WL
(Field Verify Depth and Location)
Material for Connection
1-8" Cap with 2 1/2" C.O.
1-Conc. Block
1-8" Sleeve, 12" Long

Sta. 0+57.0 WL "A"
=℄B Sta. 268+93.1 Kam. V Hwy.
O/S 35.5' Lt.
1-8" 1/16 Bend
1-Concrete Block

New joint utility pole #e102
290'29'2"
42.2'

Sta. 0+00 Begin DL "A"
=℄B Sta. 269+21.1 Kam. V Hwy.
O/S 29.50' Lt.
Construct New 3'x4' Grated Drop Inlet #1
Type 61614 W/ Type A-9P Steel Grate
Top=5.50
Inv.=2.48

309'17"
15.00'

Cut and Plug

120' LF Reinforced Concrete Jacket

Provide Temporary 2" Waterline Service. Field Verify Location and Depth of existing 2" Waterline

Install Type "A" Water Lateral Service

New joint utility pole #e102X

To Kaunakakai 268+00

269+00

270+00

271+00

To Kamalo 272+00

K A M E H A M E H A V H I G H W A Y

D18

Sta. 0+15.0 WL "A"
=℄B Sta. 268+53.6 Kam. V Hwy.
O/S 22.02' Lt.
1-8" 1/16 Bend
1-Concrete Block

Sta. 0+62.24 DL "A"
=℄B Sta. 269+21.1 Kam. V Hwy.
O/S 32.74' Rt.
Construct New 3'x4' Grated Drop Inlet #2
Type 61614 W/ Type A-9P Steel Grate
Top=5.84
Inv.=2.10

Sta. 2+63.9 WL "A"
=℄B Sta. 270+98.8 Kam. V Hwy.
O/S 30.98' Lt.
1-1" ARV
1-Type "F" MH with Conrete Collar

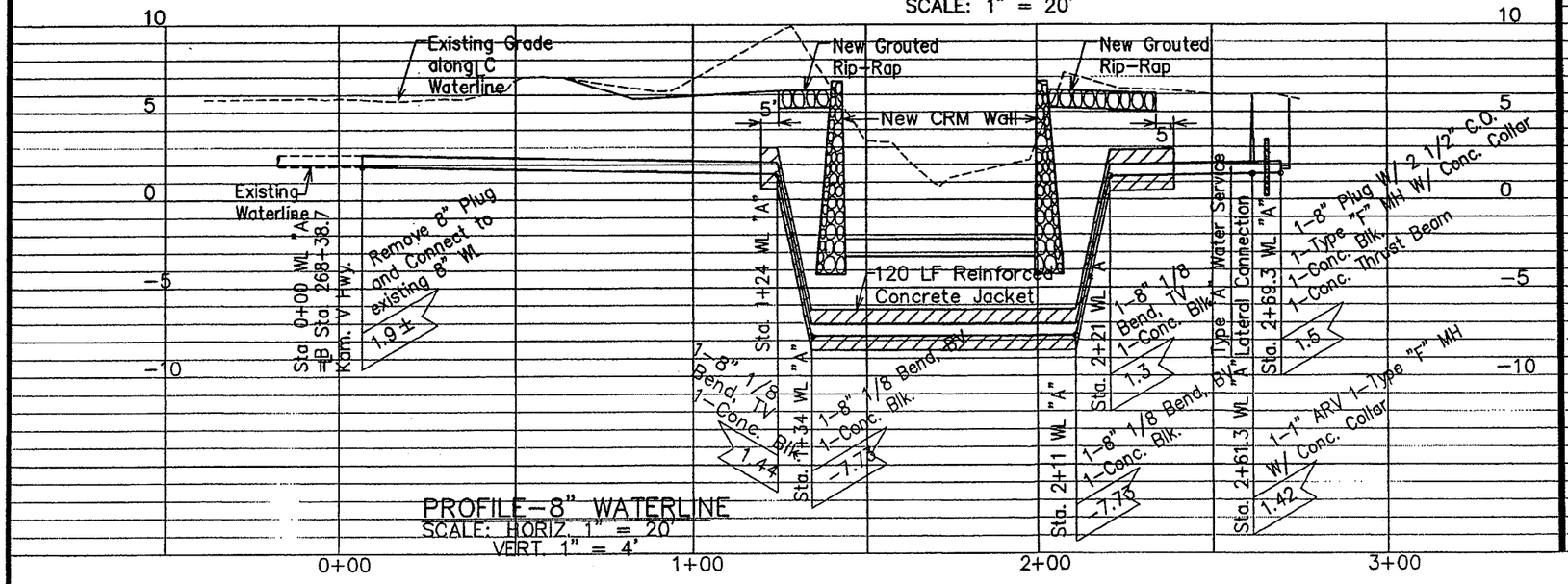
Sta. 1+19.12 End DL "A"
=℄B Sta. 269+77.9 Kam. V Hwy.
O/S 32.76' Rt.
Cut Drain Line Flush
W/ CRM Wall 10
Inv.=1.82

Sta. 2+71.97 WL "A"
=℄B Sta. 271+06.9 Kam. V Hwy.
O/S 30.61' Lt.
1-8" Plug with 2 1/2" C.O.
1-Concrete Block
1-Type "F" MH with Concrete Collar
1-Concrete Thrust Beam
For concrete thrust beam details see C4.13C4.08

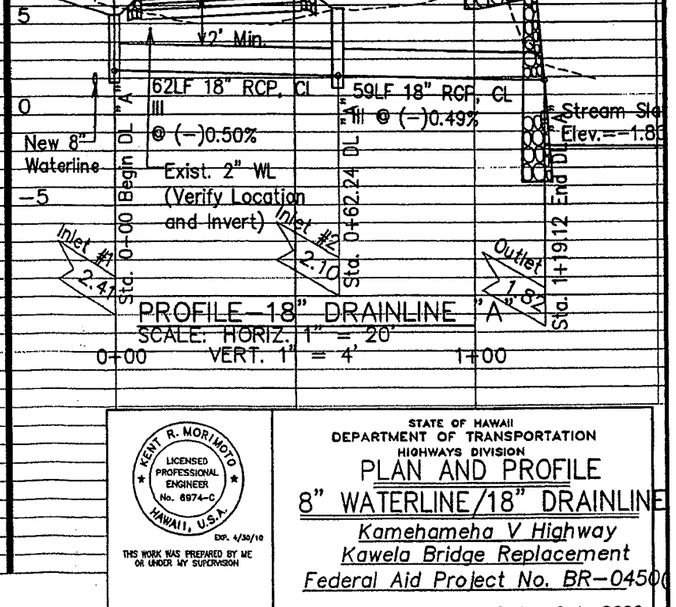
Note:
1. For waterline details, see sheets C5.01 and C5.02

TRUE NORTH
SCALE: 1"=20'

PLAN-8" WATERLINE AND 18" DRAINLINE
SCALE: 1" = 20'



PROFILE-8" WATERLINE
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'



PROFILE-18" DRAINLINE "A"
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE DATE
No.

KENT R. MORIMOTO
LICENSED PROFESSIONAL ENGINEER
No. 6974-C
HAWAII, U.S.A.
EXP. 4/30/10

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN AND PROFILE
8" WATERLINE/18" DRAINLINE

Kamehameha V Highway
Kawela Bridge Replacement
Federal Aid Project No. BR-0450(

Scale: As Shown Date: Oct. 2008

SHEET No. C4.08 OF 81 SHEETS

ATTACHMENT B.

Types of Material Being Discharged and Amount of Each Type in Cubic Yards

ATTACHMENT "B"

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Discharges produced during the new Kawela Bridge project will be both temporary and permanent. The temporary discharges are associated with the construction of the detour route. The permanent discharge involve actions associated with the stream bed lining, maintenance access ramp and bridge support and bank stabilization. See Table 1 and Exhibit "A" for details.

Table 1.

TEMPORARY DETOUR ROUTE			
	Amount		
Type	CY	Lineal Feet	Square Feet
a. Imported Borrow and Erosion Control[1]	342 CY		
b. Aggregate Base Course	280 CY	---	---
c. Hand-Laid Rip-Rap	---	---	819 sq. ft.
d. 42" Reinforced Concrete Pipe Class IV	---	361 lf.	---
[1] Fill and backfill will consist of non-expansive granular material, such as crushed coral or basalt			

BRIDGE SUPPORT STRUCTURES AND STREAM BED IMPROVEMENTS			
	Amount		
Type	CY	Lineal Feet	Square Feet
a. Filter Material for Abutment	4 CY		
b. Aggregate Base for Channel Slab	85 CY		
c. Concrete in Bridge Abutment and Wingwalls Footings	65 CY		
d. Concrete in Channel Liner	245 CY		
e. Concrete in Access Ramps	50 CY		
f. Grouted Micropiles w/Permanent Casings		2,840 lf.	
g. Structural Steel for 6-inch Diameter Bollards		138 lf.	
h. Dumped Rip-Rap			3,502 sq. ft.
i. Grouted Rip-Rap			3,176 sq. ft.

PROJECT:		KAMEHAMEHA V HIGHWAY
		KAWELA BRIDGE REPLACEMENT
		FEDERAL AID PROJECT NO. BR-0450-8
		DISTRICT OF MOLOKAI
		ISLAND OF MOLOKAI
		(90% SUBMITTAL - August 2009)

Type Code: 11 – Bridge Replacement – No Added Capacity

National Bridge Inventory Structure Number: 009004500500511

ENGINEER'S PRELIMINARY CONSTRUCTION COST ESTIMATE

DATE: July 05, 2008
By: KAI Hawaii, Inc.

ITEM NO.	SECTION NUMBER	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	201.0200	Remove Vegetation	35,645	SF	0.40	$ 14,258
2	201.0300	Cut Trees along Dirt Road for Temporary Overhead Electrical Lines	LS	LS	6,000.00	$ 6,000
3	202.0420	Remove Cattle Fence and Post	198	LF	5.00	$ 990
4	202.0430	Remove A.C. Pavement	21,074	SF	4.00	$ 84,296
5	202.0421	Remove Guardrail and Post	385	LF	35.00	$ 13,475
6	202.0410	Remove Sign and Post	1	EA	25.00	$ 25
7	202.0100	Remove Existing Bridge Structure	LS	LS		$ 35,000
8	202.0421	Remove Existing 2" PVC Waterline	130	LF	5.00	$ 650
9						
10		DETOUR ROAD				
		add construction of detour road				
11	203.0100	Roadway Excavation	181	CY	80.00	$ 14,480
12	203.0210	Imported Borrow	263	CY	160.00	$ 42,080
13	209.0100	Temporary Erosion Control				
		Stabilized Construction Entrance (Ingress and Egress)	79	CY	300.00	$ 23,700
		Silt Fence	508	LF	10.00	$ 5,080
		Dust Screen	206	LF	70.00	$ 14,420
14	304.1110	Aggregate Base Course	280	CY	200.00	$ 56,000
15	401.0000	Hot Mix Asphalt, Mix No. V	302	TON	350.00	$ 105,840
16	610.0200	Hand-Laid Rip-Rap	819	SF	30.00	$ 24,570
17	603.1054	42" Reinforced Concrete Pipe, Class IV	361	LF	150.00	$ 54,150
18	629.1010	4" Single White Edge Stripe (Tape, Type III)	999	LF	5.00	$ 4,995
19	629.1011	4" Double Yellow Stripe (Tape, Type III)	999	LF	10.00	$ 9,990
20	629.2030	Type "C" Pavement Marker	26	EA	20.00	$ 520
21	629.2040	Type "D" Pavement Marker	26	EA	20.00	$ 520
22	629.2080	Type "DB" Pavement Marker	1	EA	20.00	$ 20
23	710.0100	Temporary Guardrail	430	LF	80.00	$ 34,400
24	202.0110	Removal of Detour Road, Restore to Finish Grade	LS	LS	LS	$ 20,000
25	645.0100	Traffic Control	LS	LS	10,000.00	$ 10,000
		KAMEHAMEHA V HIGHWAY				
26	202.0430	Remove A.C. Pavement	15,000	SF	10.00	$ 150,000
27	202.0100	Remove Roadway Fill and Base Course	954	CY	200.00	$ 190,800
28	202.0410	Remove Sign and Post	4	EA	100.00	$ 400
29	202.0420	Remove 42" Reinforced Concrete Pipe	361	LF	80.00	$ 28,880
30	202.0500	Remove Jersey Barriers and Type I and Type III Barricades	LS	LS	5,000.00	$ 5,000
31	203.0100	Roadway Excavation	1,135	CY	80.00	$ 90,800
32	203.0210	Imported Borrow	148	CY	160.00	$ 23,680

EXHIBIT A

PROJECT:		KAMEHAMEHA V HIGHWAY
		KAWELA BRIDGE REPLACEMENT
		FEDERAL AID PROJECT NO. BR-0450-8
		DISTRICT OF MOLOKAI
		ISLAND OF MOLOKAI
		(90% SUBMITTAL - August 2009)

Type Code: 11 – Bridge Replacement – No Added Capacity

National Bridge Inventory Structure Number: 009004500500511

ENGINEER'S PRELIMINARY CONSTRUCTION COST ESTIMATE

DATE: July 05, 2008

By: KAI Hawaii, Inc.

ITEM NO.	SECTION NUMBER	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
33	204.0100	Trench Excavation for Water Line	226	CY	60.00	$ 13,560
34	204.0110	Trench Backfill for Water Line	131	CY	100.00	$ 13,100
35	206.0100	Excavation for Dumped Rip-Rap	260	CY	100.00	$ 26,000
36	206.5000	Structural Excavation for CRM Retaining Walls	640	CY	350.00	$ 224,000
37	206.6000	Structural Excavation for Bridge Abutments	375	CY	625.00	$ 234,375
38	206.6100	Structural Excavation for Wingwalls	42	CY	350.00	$ 14,700
39	206.6200	Structural Excavation for Approach Slabs	170	CY	250.00	$ 42,500
40	206.6300	Structural Excavation for Channel Liner	1,120	CY	550.00	$ 616,000
41	206.6400	Structural Excavation for Access Ramps (2)	300	CY	550.00	$ 165,000
42	206.8300	Filter Material for Abutments	4	CY	125.00	$ 500
43	209.0100	Temporary Erosion Control (Gravel Filled Bags)	702	LF	100.00	$ 70,200
44	301.0100	Hot Mix Asphalt Base Course (ACB)	957	TON	350.00	$ 334,908
45	305.1110	Aggregate Subbase Course (ASB)	886	CY	160.00	$ 141,760
46	305.1120	Aggregate Base for Channel Slab	85	CY	160.00	$ 13,600
47	401.0000	Hot Mix Asphalt, Mix No. V	488	TON	350.00	$ 170,856
48	503.1080	Concrete in Bridge Deck	116	CY	1,600.00	$ 185,600
49	503.1081	Concrete in Bridge Abutments and Wingwalls	68	CY	2,400.00	$ 163,200
50	503.1082	Concrete in Bridge Abutment and Wingwall Footings	65	CY	1,700.00	$ 110,500
51	503.1083	Concrete in Bridge Approach Slabs	105	CY	1,400.00	$ 147,000
52	503.1084	Concrete in Channel Liner	245	CY	1,700.00	$ 416,500
53	503.1085	Concrete in Access Ramps	50	CY	2,400.00	$ 120,000
54	505.0800	Grouted micropiles with permanent casing ADD TESTING	2,840	LF	250.00	$ 710,000
55	507.5000	Concrete Bridge Railings	116	LF	350.00	$ 40,600
56	507.7500	Concrete for Bridge End Posts	80	LF	250.00	$ 20,000
57	504.7410	Prestressed Concrete Planks for Structures	550	LF	385.00	$ 211,750
58	501.0210	Structural Steel for 6" Diameter Bollards at 3' on Center	LS	LS	LS	$ 19,000
59	604.2330	Grated Inlet, Type 61614	2	EA	15,000.00	$ 30,000
60	603.1006	18" Dia. Reinforced Concrete Pipe, Class III	120	LF	250.00	$ 30,000
61	655.0200	Dumped Rip-Rap	3,502	SF	25.00	$ 87,550
62	612.0200	Grouted Rubble Paving	3,176	SF	50.00	$ 158,800
63	710.0100	New Guardrail	354	LF	80.00	$ 28,320
64	636.0100	8-1/2" Concrete Curb for New Guardrail	60	CY	400.00	$ 24,000
65	624.0100	6" Ductile Iron Pipe, Class 56 (Bollards)	138	LF	75.00	$ 10,350
66	624.0100	8" Ductile Iron Pipe	270	LF	80.00	$ 21,600
67	624.0100	1" Air Relief Valve	1	EA	3,000.00	$ 3,000
68	624.0100	8" Plug with 2 1/2" Clean-out	1	EA	800.00	$ 800

PROJECT:		KAMEHAMEHA V HIGHWAY
		KAWELA BRIDGE REPLACEMENT
		FEDERAL AID PROJECT NO. BR-0450-8
		DISTRICT OF MOLOKAI
		ISLAND OF MOLOKAI
		(90% SUBMITTAL - August 2009)

Type Code: 11 – Bridge Replacement – No Added Capacity

National Bridge Inventory Structure Number: 009004500500511

ENGINEER'S PRELIMINARY CONSTRUCTION COST ESTIMATE

DATE: July 05, 2008

By: KAI Hawaii, Inc.

ITEM NO.	SECTION NUMBER	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
69	624.0100	8" 1/8 Bend, Top Vertical	2	EA	600.00	$ 1,200
70	624.0100	8" 1/8 Bend, Bottom Vertical	2	EA	600.00	$ 1,200
71	624.0100	8" 1/16 Bend, Horizontal	2	EA	600.00	$ 1,200
72	624.0100	Concrete Reaction Block	4	EA	400.00	$ 1,600
73	624.0100	Reinforced Concrete Jacket	120	LF	300.00	$ 36,000
74	624.0100	8" Cap with 2 1/2" Clean-out	1	EA	800.00	$ 800
75	624.0100	Type "A" Water Service Lateral	1	EA	1,000.00	$ 1,000
76	624.0100	Temporary 2" PVC Water Line	144	LF	50.00	$ 7,200
77	626.0100	Type "F" Manhole with Concrete Collar	2	EA	10,000.00	$ 20,000
78	629.1010	4" Single White Edge Striping (Thermoplastic Extrusion)	1,501	LF	15.00	$ 22,515
79	629.1011	4" Double Yellow Striping (Thermoplastic Extrusion)	596	LF	30.00	$ 17,880
80	629.2010	Type "A" Pavement Markers	16	EA	20.00	$ 320
81	629.2040	Type "D" Pavement Markers	30	EA	20.00	$ 600
82	629.2080	Type "DB" Pavement Markers	1	EA	20.00	$ 20
83	641.0100	Permanent Erosion Control (Hydromulch)	35,645	SF	0.80	$ 28,516
84	645.0100	Traffic Control	LS	LS	10,000.00	$ 10,000
85	693.0100	Terminal Impact Attenuator	4	EA	6,000.00	$ 24,000
86	699.0100	Mobilization and Demobilization (10% calculated maximum of total sum of all items, excluding the bid price of the item)	L.S.	L.S.		$ 585,870
	TOTAL SUM (ITEM NOS. 1 to 86)			SUB-TOTAL	$ 6,444,569	
				CONTINGENCY (15%)	$966,685.34	
				TOTAL	$ 7,411,254	
				SAY	$ 7,420,000	
87	665.1000	Invasive Species Management	L.S.	L.S.	L.S.	$ 20,000.00

ATTACHMENT C.

Description of Avoidance, Minimization, and Compensation

ATTACHMENT "C"

22. Description of Avoidance, Minimization, and Compensation

A. The State Department of Highways (HDOT) reviewed a number of alternatives in their assessment of the Kawela Bridge as follows.

PREFERRED ALTERNATIVE

The proposed project represents the preferred alternative based on hydraulic analysis which defines bridge design parameters. This alternative provides a cost-effective and a technically viable solution to address the current deficiencies of the existing Kawela Bridge.

NO ACTION ALTERNATIVE

The "no action" alternative would see the existing Kawela Bridge remain in its current substandard state. The no action alternative is considered inappropriate because the bridge does not meet current HDOT/American Association of State Highway and Transportation Officials (AASHTO) and Federal Highway Administration (FHWA) standards.

HIGHWAY REALIGNMENT AND BRIDGE RELOCATION ALTERNATIVE

This alternative would see the existing Kamehameha V Highway realigned and a new bridge constructed upland of the existing Kawela Bridge. The new bridge would be longer and wider, and would conform to HDOT/AASHTO and FHWA standards. This alternative would eliminate the need to construct and later demolish a detour road and temporary bridge. However, the realignment of Kamehameha V Highway would go through several properties. Since the construction would involve development of a new section of highway on these properties, the community would feel the impact of realignment. Furthermore, the realignment of Kamehameha V Highway would require additional land acquisition for right-of-way purposes. For these reasons, this alternative was not considered to be the most desirable.

BRIDGE DESIGN ALTERNATIVES

HDOT assessed a number of bridge design alternates to improve hydraulic capacity of the bridge crossing. The three (3) design alternatives considered included: (a) raising bridge height by an additional one (1) foot; (b) raising the bridge height an additional two (2) feet; and (c) raising the bridge height by an additional six (6) feet. The existing bridge height was estimated to have a capacity of 500 cfs, i.e, the storm water discharge just before the roadway

overtops to east of the bridge. Raising the bridge height by an additional one (1) foot would increase the capacity to 550 cfs. Raising the bridge height by an additional two (2) feet and increasing the span length from 44 feet to 56 feet would increase the capacity to 1,520 cfs. Raising the bridge height by an additional six (6) feet would increase the capacity to 2,700 cfs. The hydraulic model also indicated that progressively raising the bridge height would directly impact the flood elevations upstream of the bridge. For example, raising the bridge height by two (2) feet would not have a significant impact on flood elevations, while raising the bridge height by six (6) feet would increase flood elevations for a distance of approximately 100 feet upstream beyond the existing floodplain. The bridge and the graded roadway approach to the bridge would act as a dam and hold water upstream of the roadway/bridge. Therefore, although raising the bridge would increase hydraulic capacity, it would also increase the flood elevation level and extent of flooding upstream. As a result of this analysis, HDOT decided that the optimum bridge design would be to increase the bridge elevation by approximately two (2) feet and increase the span length by 12 feet.

B. Summary of Unavoidable Impact on the Environment and Resources

Project construction will result in a certain amount of unavoidable construction-related impacts. These impacts include noise-generated impacts and air quality impacts associated with the operation of construction equipment. Air quality will also be impacted by dust generated from site work. The proposed project will also involve the temporary commitment of vacant, privately owned lands for the detour route. Some existing vegetation will have to be removed to construct the detour route. The removal of this vegetation is not anticipated to have an adverse impact on the biological resources of the environment. The construction-related impacts will be temporary and mitigated through implementation of appropriate BMPs. Water quality may also be potentially impacted during the construction of the temporary detour route. Water quality monitoring will be carried out during construction to mitigate potential adverse impacts to water quality. The project will be developed in compliance with Sections 404 and 401 of the Clean Water Act.

Based on the findings of the archaeological study and the Section 4(f) assessment, potential adverse impacts to cultural and historic sites and properties are not anticipated. The proposed project will not impact park land. Archaeological monitoring will be carried out during all ground altering activities to mitigate potential adverse impacts to cultural and historic resources. Coordination has been initiated with the SHPD pursuant to a Section 106 National Historic Preservation Act. If required, a Memorandum of Agreement with the SHPD will be undertaken to mitigate potential adverse impacts to cultural and historic properties.

The proposed action will involve a commitment of fuel, labor, funding, and material resources. However, the commitment of resources necessary to implement the proposed project will be justified, given the eventual benefits to be realized through the completion of the new bridge.

In the long term, the construction of the Kawela Bridge replacement is not anticipated to create any significant, long-term adverse environmental effects.

ATTACHMENT D.

Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody

ATTACHMENT "D"

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody.

a. TMK (2) 5-4-001
Kamehameha V Highway Right-of-Way
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

b. TMK (2) 5-4-001:027
Pamela Phoebe Parker and Fred Ronald Parker
963 Newport Road
Utica, New York 13502

c. TMK (2) 5-4-001:023
Molokai Properties, Limited
P.O. Box 259
Maunaloa, Hawaii 96770

ATTACHMENT E.

List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application

ATTACHMENT "E"

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL	IDENTIFICAT-ION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
State Department of Transportation	Chapter 343, HRS FONSI	Federal Aid Project No. BR-0450(8)		7.23.09	
Federal Highway Administration	Categorical Exclusion	Federal Aid Project No. BR-0450(8)		8.12.09	
Molokai Planning Commission	Special Management Area Use Permit	SM1 2009/0002		9.28.09	
Board of Land and Natural Resources	Conservation District Use Permit	TBD*	TBD	In review	
Department of Health	Section 401 Water Quality Certification	TBD	TBD	In review	
Commission on Water Resource Management	Stream Channel Alteration Permit	TBD	TBD	In review	
DBEDT, Office of Planning	Coastal Zone Management Consistency Approval	TBD	TBD	In review	
* To Be Determined					